# LITERATURE OF MANUFACTURERS

Catalogues, bulletins and other direct advertising material recently issued.

Manufacturers are requested to send copies of new trade literature promptly to Electric Refrigeration News.

### Alaska

A folder has been received from the Alaska Refrigerator Co., Muskegon, Mich., which describes six cabinets designed for apartment house installation. The folder entitled, "Electric Cabinets for Apartments," and contains six photographs of models with enameled steel exteriors. In addition specifications and a discussion of construction are included.

### Belding-Hall

Catalog No. 27 issued by the Belding-Hall Co., Belding, Mich., describes its complete line of display and storage refrigerators. Materials and construction are discussed with the aid of several photographs. Illustrations of 25 models with oak finish and two in porcelain are included with specifications for each model.

### Century

Two folders and three page inserts issued by the Century Electric Co., St. Louis, Mo., describe direct current, split-phase induction, automatic start induction, polyphase, squirrel cage induction polyphase, and repulsion-start induction single phase motors. Illustrations and diagrams describe the various types of motors and parts.

### Crystal

Circular No. 95 has been received from the Crystal Refrigerator Co., Fremont, Nebr., illustrating all-steel electric cabinets with removable front baffle and porcelain defrosting pan for apartment houses. Photographs of seven models are included with specifications and a discussion of construction.

### Electrolux

A pamphlet issued by Servel Sales, Inc., Evansville, Ind., entitled, "Refrigeration With Gas," describes the operation of the Electrolux refrigerator. It contains a brief discussion of the principles of refrigeration, types of refrigeration, principles of the absorption type, construction and control devices. Another booklet, "How Best To Use Electrolux Servel," contains a number of delicious recipes for making frozen desserts, drinks and salads.

### General Electric

The electric refrigeration department of the General Electric Co., Cleveland, Ohio, has prepared a booklet which describes the new solid porcelain deluxe models. It contains four photographs of models with food shelf areas ranging from 12 sq. ft. to 29½ sq. ft. A broadside contains photographs of the General Electric water cooler.

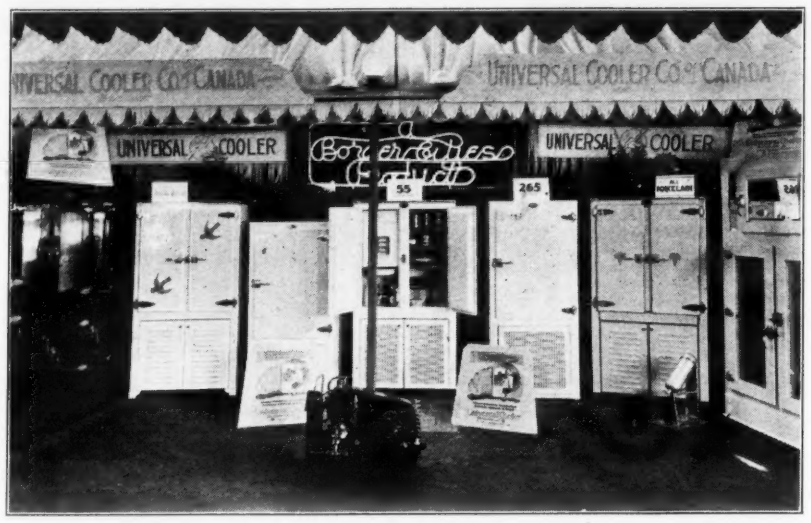
### Servel

Milk cooling is discussed in a booklet sent in by Servel Sales, Inc., Evansville, Ind. It bears the title, "Better Milk," and treats briefly with the application of electric refrigeration to milk, construction of the dairy house, tanks and operation.

### Winters & Crampton

"Distinctive Refrigerator Hardware" is the title of a catalog issued by the Winters & Crampton Manufacturing Co., Grand Rapids, Mich., which portrays, in actual size, its line of locks and hinges. Two types of hinges are described in the catalog, the springless automatic lock and the spring lock. Illustrations of both types are included with specifications. A partial list of manufacturers using its line is contained on the last page.

# Universal Cooler of Canada Displays Line at Windsor Electric Show




**Colored domestic models and refrigerators for the grocer and florist shown in the above photograph were featured by the Universal Cooler Co., of Canada, Ltd., at an electric and radio show held recently at Windsor, Ont. The frosted sign in the center added to the effectiveness of the exhibit.**

### X-L

A broadside received from the X-L Refrigerating Co., Chicago, Ill., announces the Hilger multi-feed evaporating system for ice making and refrigerating plants. A number of drawings show the outlays for several systems and a short discussion accompanies each drawing.

# REQUESTS FOR INFORMATION

Readers who can assist in furnishing correct answers to inquiries or who can supply additional information are invited to address Electric Refrigeration News, referring to the query number.

### Copper Tubing Straighteners

*Query No. 158*—An electric refrigerator dealer in Shreveport, La., asks for the names and addresses of concerns manufacturing copper tubing straighteners.

### Molds for Ice Cream

*Query No. 159*—An electric refrigerator distributor in Long Island City, N. Y., writes: "We receive requests from time to time as to where molds for the making of ice cream in electric refrigerators can be purchased. Can you inform us as to where these molds may be purchased in New York?"

### Tubing Tinned Inside

*Query No. 160*—A distributor inquires "Will you please be good enough to refer this letter to at least two manufacturers of copper tubing with the request that they quote us prices on ¼ and ½ inch tubing for work with Frigidaire equipment. We would also like to know what prices prevail on this tubing if tinned inside."

### Evaporators

*Query No.* 161—A Chicago concern writes, "We would like to obtain the names of manufacturers who build cooling units or evaporators for small household refrigerators. These evaporators should be suitable for methyl chloride refrigerant. We are interested in the evaporators only and not in complete refrigerating plants, as we are manufacturers of refrigerating machinery ourselves."

### Iowa Public Service Co. Moves Headquarters to Sioux City

Iowa Public Service Co. of Ft. Dodge, Ia., has taken over control of the Sioux City Gas & Electric Co., and the Sioux City Service Co. Headquarters of the company will be moved to Sioux City.

# NEW DEALERS & DISTRIBUTORS

Recent appointments announced by manufacturers and new sales outlets reported from the field.

### Frigidaire

Dealer:
J. F. Joslin, 1430 Wabash Ave., Terre Haute, Ind.

### General Electric

Dealer:
Bucklin Electric Co., Pratt, Kans.

### Servel

Dealer:
El Paso Electric Co., Colorado Springs, Colo. (Servel-Electrolux)

### Sparklets, Inc., New York, N. Y.

Distributors:
Consolidated Gas Co., 212 W. 57th St., New York City, N. Y.
Pinellas Electric Refrigeration Co., St. Petersburg, Fla.
Electrolux Servel Corp., 408 E. 111th St., New York, N. Y.
H. M. Price Hardware Co., Mobile, Ala.
Reid-Bishop, Inc., Fort Worth, Tex.
E. R. Schollenberger, Hamburg, Pa.
N. K. Ovalle, 212 N. 2nd St., Harrisburg, Pa.
Metropolitan Edison Co., 820 N. 5th St., Reading, Pa.
Peoples Light & Power Co., 27 William St., New York, N. Y.
Lambert & Simpson, 65 East 6th St., St. Paul, Minn.
Philadelhia Electric Co., 10th and Chestnut Sts., Philadelphia, Pa.
Domestic Electric Appliance Co., Peoria, Ill.
A. G. Riddick, Inc., Jackson, Miss.
Arnold-Ervin Co., 210 W. 3rd St., Davenport, Iowa.
Midwest Refrigeration Co., 707 Grand Ave., Des Moines, Iowa.
Electric Refrigerator Co., 725 Marquette Ave., Minneapolis, Minn.

Dealers:
Tip Top Products Co., 205 N. 9th St., Reading, Pa.
Houston Lighting & Power Co., Houston, Tex.
L. C. Gunther, Inc., Middletown, N. Y.
Law Electric Co., Norristown, Pa.
Wolfe Engineering & Mfg. Co., 1408-14 Vernon St., Harrisburg, Pa.
Kelvinator-Bohman Co., Inc., Hagerstown, Md.
Electric Refrigerator Co., 314 Dexter Ave., Montgomery, Ala.
Northern States Power Co., Montevideo, Minn.
Virginia Electric & Power Co., 16 N. 7th St., Richmond, Va.
Savannah Gas Co., Savannah, Ga.
Davidson Bros., 928-30 W. Flagler St., Miami, Fla.
Winter Haven Water Ice & Light Co., Winter Haven, Fla.
Norge Co. of Missouri, 4000-06 Laclede Ave., St. Louis, Mo.
McCollister Bros., Inc., Lake Charles, La.
McCollister Bros., Inc., Shreveport, La.

# FACTS AND FIGURES FROM OTHER PUBLICATIONS

Clipped from SERVICESCOPE—"In Amsterdam, Holland, they keep traffic cops' feet warm. An electrically heated grid is inset into the small platform on which each officer stands during the winter." Now if they would just refrigerate them in summer—

It is estimated that seventy per cent of all the primary horsepower used in American industry is electrical.

August MONTHLY LABOR REVIEW of the Government Bureau of Labor Statistics gives data on increases in prices over fifteen years ago. The increase of food is given as 52.6 per cent; clothing, 62.6 per cent; rent, 57.6 per cent; house furnishing goods, 101.1 per cent; and electricity decreased 13.6 per cent.

On the anniversary of the first half century of incandescent lighting only two men who helped establish the first lighting company were living, Thomas A. Edison, inventor of the light, and Francis Jehl, one of his assistants.

During the first nine months of the present year, imports into the United States of frozen eggs from China totaled 9,637,000 pounds compared to 2,489,000 pounds during the same period in 1927.—ICE AND REFRIGERATION.

# "PLEASE CHANGE MY ADDRESS"

Recent movements of subscribers as indicated by changes in mailing addresses.

**Bohny, O.**, from 2104 Live Oak St., to 5902 Vanderbilt St., Dallas, Tex.

**Chambers, Chas. E.**, from 1305 Jefferson Ave., to 1220 Madison Ave., Toledo, Ohio.

**Crosley Radio Corp.**, from 3820 Colerain Ave., to 3401 Colerain Ave., Cincinnati. Ohio.

**Diels, V. A.**, from 1741 W. 58th St., to 1740 Hoover St., Los Angeles, Calif.

**Doher-Cutler, Inc.**, from 957 Main St., Dubuque, Ia., to General Delivery, Des Moines, Ia.

**Dudley, R. S.**, from 49 Fourth St. to Box 804, Troy, N. Y.

**Gibson, R. B.**, from Servel Sales, Inc., Evansville, Ind., to 288 W. Fourth St., Mansfield, Ohio.

**Heideman, Fred J.**, from 2441 Field, Detroit, Mich., to 319 Salem, Dayton, Ohio.

**Ideal Electric & Mfg. Co., The**, from 1420 Majestic Bldg. to 1395 Prospect Ave., Milwaukee, Wis.

**Jordan, Leroy M.**, from 34 Borden St., Fall River, Mass., to 257 Union St., New Bedford, Mass.

**Konze, John E.**, from 493 Lincoln Place, Brooklyn, N. Y., to 302 South Third Ave., Highland Park, N. J.

**Lipman, Lewis**, from 4952 Lake Park Ave., to 2232 W. Lake, Chicago, Ill.

**Lively, T. S.**, from 160½ So. Seventh St., Goshen, Ind., to Morrison, Ill.

**McGuire, J.**, from Welsbach Co., Gloucester, N. J., to 1015 Chestnut St., Rm. 315, Philadelphia, Pa.

**Nave, Alfred E.**, from 401 Chandler Ave., to 1012 S. First St., Evansville, Ind.

**Olin, C. L.**, from The Terminal Sales Bldg. to 3724 Sunnyside Ave., Seattle, Wash.

**Palmiter, Fred S.**, from 1216 No. Court to 1030 S. Third St., Rockford, Ill.

**Peterson, Leonard A.**, from Box 326, Redford, Mich., to North Manor, Apt. 102, N. Martindale, Detroit, Mich.

**Porter Arthur N.**, from 136 Jefferson Ave. to 258 Jefferson Ave., S. E., Grand Rapids, Mich.

**Radman, A. M.**, from 2215 Missouri Ave., East St. Louis, Ill., to 4530 McMillan Ave., St. Louis, Mo.

**Reed, Paul B.**, from No. 3 Venice Ave. to 2207 Riverside Ave., Evansville, Ind.

**Rutledge, Arthur H.**, from 808 Woodland Ave. to 808 N. Church St., Rockford, Ill.

**San, L. J.**, from 8035 Fourth Ave., St. Petersburg, Fla., to 46 Kilburn Rd., Garden City, N. Y.

**Schomp, Donald L.**, from 16116 Bentler to 12725 Indiana, Detroit, Mich.

**Shaffer, H. A.**, from Climax Engineering Co., Clinton, Ia., to 2104 Live Oak St., Dallas, Tex.

**Sorenson, E. J.**, from 233 Lake Lawn Place to 404 Beaver Bldg., Madison, Wis.

**Sorenson, S. W.**, from 42 Thirtieth St., Milwaukee, Wis., to 404 Beaver Bldg., Madison, Wis.

**Stoplet, D. S.**, from 235 South St., Waukesha, Wis., to 404 Beaver Bldg., Madison, Wis.

**Vasbinder, F. L.**, from c/o Strelinger Copeland Co., 143 W. Huron, Pontiac, Mich., to 239 Grace St., Flint, Mich.

**Via, E. Douglass**, from 311 W. Chestnut St. to 417 Martin Brown Bldg., Louisville, Ky.

**Wade, L. W.**, from Ia. Public Service Co., Fort Dodge, Ia., to 701 Francis Bldg., Sioux City, Ia.

**Webb-Kramer Elec. Appliance Co.**, from 1460 Hodiamont Ave. to 6312 Easton Ave., St. Louis, Mo.

**Zellinger, Joseph**, from Grandville, R. R. No. 1, Grandville, Mich., to 2706 Central Ave., Wyoming Park, Grand Rapids, Mich.

**Balsam-Wool INSULATION**
Efficient, Light Weight, Odorless, Flexible
For samples and complete information address
WOOD CONVERSION COMPANY
360 N. Mich. Ave., Chicago, 101 Park Ave., N.Y.
Mills at Cloquet, Minn.

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Two of the largest refrigerator plants in the country use Ferro Enamels and Equipment.

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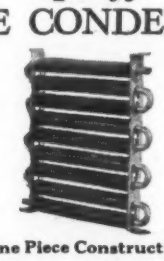
CLEVELAND, OHIO

*Specify*
ROME CONDENSERS



One Piece Construction
Rome Turney Radiator Co.
ROME, N. Y.

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For all commercial jobs you will find NOVOID Corkboard Insulation the most satisfactory insulating material for the purpose. It is convenient to use. It comes in 12"x36" and 24"x36" sheets, in 1", 1½", 2", 3", and 4" thicknesses. Shipped in strong fibre containers, each containing 72 board feet. Samples on request.
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CORK IMPORT CORP.
345-349 W. 40th St., New York
*Branches in Principal Cities*

# THE CONDENSER

ADVERTISING RATE fifty cents per line (this column only).

SPECIAL RATE if paid in advance—Positions Wanted—fifty words or less, one insertion $2.00, additional words four cents each. Three insertions $5.00, additional words ten cents each. All other classifications—fifty words or less, one insertion $3.00, additional words six cents each. Three insertions $8.00, additional words sixteen cents each.

### POSITIONS AVAILABLE

To salesmen in CLEVELAND, CHICAGO and PITTSBURGH who have made a personal sales record in electric refrigeration and who are dissatisfied with their present position we offer a connection with a large growing electric refrigeration organization in Detroit which has a proposition above the average for the man who is now producing in this field. State facts fully in first letter. All replies held in strict confidence. Interviews will be held in these cities soon for those who qualify. Address Box No. 129.

### POSITIONS WANTED

Refrigeration engineer, with eight years' experience in electric refrigeration, includes research engineering, production and service. Graduate Electric and Mechanical Engineer. Have held major executive positions with three of the largest manufacturers. Available when greater opportunity is offered. Box No. 119.

Service Manager—Experienced and capable of handling all details of a department, planning and laying out installations, commercial and domestic, as well as directing. Can personally diagnose and service equipment troubles. Want a connection that can become permanent. Within 125 miles of Philadelphia preferred. Box No. 120.

PURCHASING EXECUTIVE—Now available with 12 years purchasing experience. Last 8 years with one of leading electric refrigeration manufacturers. Has a wide acquaintance with sources of supply. Can furnish references from last employer. Address Box No. 128.

Thoroughly experienced General Electric salesman is open for a proposition as salesmanager with live distributor. Am a settled man, employed at present but desire to make change. Am a producer of good address and personality. Box No. 130.

### FOR SALE

A manufacturer of Electric Refrigeration of a well known make is in a position to furnish complete units or any parts, but specializes on compressors for domestic machines. Our engineering department is at the command of our customers. Box 127.

**Refrigeration Service Co., Inc.**
SERVICE SPECIALISTS — Installations, Alterations, Repairs, Inspection, Reconditioning, Maintenance
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**Refrigeration**
**H. R. VAN DEVENTER**
*Solicitor of Patents*
*Refrigeration Engineer*
342 Madison Ave., N. Y.

# SALE

**By Manufacturer to Enforce Lien on Electric Refrigerating Machines for Non-Payment by the Buyer to the Manufacturer and Seller.**

By virtue and in execution of an unpaid seller's lien, the Metal Saw & Machine Co., Inc., a Massachusetts corporation, of 40 Napier Street, Springfield, Massachusetts, the manufacturer of electrical refrigerating machines for the Coldak Corporation, a Delaware corporation, having its main office at 1775 Broadway, in the City of New York, Borough of Manhattan and State of New York, will sell at public auction at three o'clock p. m., on the twenty-seventh day of December, 1928, on the premises of the Metal Saw & Machine Co., Inc., 40 Napier Street, Springfield, Hampden County, Massachusetts, sixteen hundred (1600) electrical refrigerating machines, designated as Model 1 A, designed for household use. The machines will be sold in one lot.

Further information in reference to the Model 1 A machines may be had from the Metal Saw & Machine Co., Inc., 40 Napier Street, Springfield, Massachusetts.

Five Thousand ($5,000) Dollars will be required to be paid in cash at the time and place of the sale as earnest money, and the balance will be required to be paid in cash on delivery of the machines by the Metal Saw & Machine Co., Inc., to the purchaser.

METAL SAW & MACHINE CO., INC.
By Howard L. Washburn, Treasurer.
Springfield, Massachusetts, November 28, 1928.

GARDNER, GARDNER & BALDWIN, Attorneys.

N. D. & D. R. WINTER, Auctioneers.

# Subscription Order

ELECTRIC REFRIGERATION NEWS,
550 MACCABEES BUILDING, DETROIT, MICH.

Please enter subscription to Electric Refrigeration News.

United States and Possessions:
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All other Countries:
☐ $2.25 per year. ☐ Two years for $4.00.

I am enclosing payment in the form of
☐ Check ☐ P. O. Order ☐ Cash

Name.....

Street Address.....

City and State.....

Remarks:.....

# ELECTRIC REFRIGERATION NEWS

**The business newspaper of the refrigeration industry**

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## N. E. L. A. COMMITTEE PROPOSES A "WEEK" FOR REFRIGERATION

### Subcommittee to Submit Plans for Educational Activity

AT a meeting of the Refrigeration Committee of the National Electric Light Association at the offices of the Ohio Public Service Company, Hanna Bldg., Cleveland, Ohio on Nov. 14, it was proposed that a"National Refrigeration Week" be designated, sometime during the month of May, for a dramatic climax of a campaign of education designed to promote public understanding of the need for more adequate food preservation.

Opening the discussion, Chairman C. L. Dunn, general new business manager of the Ohio Public Service Company, referred to a previous meeting of the Committee held in New York City, October 15, at which it was pointed out that approximately 5 per cent of electric service customers now have electric refrigeration. At this meeting opinion was expressed that many of the initial users have purchased because of pride of ownership and the novelty of the device, whereas continued progress toward the point of saturation will require real selling effort and public education on the subject of proper food preservation.

At the previous meeting Chairman Dunn had focused attention on the need for a national educational campaign fostered by the N. E. L. A. Refrigeration Committee. He said: "We must conduct a national educational campaign, touching the entire industry with the knowledge of the need for the benefits of refrigeration by the entire citizenship of our nation. We must carry through with a definite program from N. E. L. A. headquarters and put it into the hands of the leaders in every community. This program should be inaugurated by the Refrigeration Committee and the efforts of the Committee should be supplemented by the services of specialists now engaged in this work in the industry both in and out of the utility field."

Mr. Dunn further outlined the requirements for a comprehensive campaign at the Cleveland meeting by expressing the

*(Concluded on Page 2, Column 4)*

## S. BENNIS EXPLAINS THE HOW AND WHY OF REFRIGERATION

### Addresses New York Electrical Society on Domestic Service

THE why and how of domestic refrigeration was the subject of an address by Stephen Bennis, power engineer of the United Electric Light & Power Co., before the monthly meeting of the New York Electrical Society held in the Engineering building, Dec. 12.

Mr. Bennis, in his introduction, pointed out clearly how important is the problem of correct refrigeration in the average household. Foods are almost entirely composed of organic material which may be decomposed so as to give toxic compounds whose presence is indicated by bad odors. Their decay is stimulated by the same condition which would favor their growth while living: warmth and moisture. The actual mechanisms of decay are themselves living organisms. There are three principal types: molds, yeasts and bacteria. All three are known to reproduce rapidly in warm, moist surroundings. Our problem then is to create conditions as nearly adverse as possible, if the food is to be kept in good condition.

Refrigeration is the answer to this problem. By this means the growth of putrifying bacteria may be checked. A recent report by a medical authority, however, states that the conditions under which food is stored in nine out of ten American homes are a menace to health. Strange as it may seem, the freshness of food depends more upon the environment in which it is kept than on the length of time it is stored.

Another service rendered by good refrigeration is the stabilization of food supply by the use of wholesale food storage. Contrary to the general impression, correctly stored foods will not be inferior to those directly received. The only chance for spoilage occurs during the handling where the conditions of temperature and humidity are high. If care is used in the selection and treatment of food to be stored it may come to you in better condition than that shipped directly.

The principle of operation of all automatic refrigerators is essentially the

*(Concluded on Page 2, Column 2)*

# GEORGE W. MASON ELECTED CHAIRMAN OF BOARD AND GENERAL MANAGER OF KELVINATOR CORPORATION

George W. Mason

GEORGE W. MASON, newly-elected chairman of the board and general manager of the Kelvinator Corp., holds an enviable record as a production executive in both the automobile and electric refrigeration industries. For five and one-half years he was general works manager of the Chrysler Corp. in charge of manufacturing operations in all plants. In 1926 he became vice president and general manager of Copeland Products, Inc., where his success was recognized by his election as president of the company a little over a year later.

Mr. Mason graduated from the University of Michigan in 1913 with a degree of Bachelor of Science, his course being a combination of mechanical engineering and business administration. He then joined the Studebaker Corp. and later Dodge Bros., in each of which he was connected with the manufacturing divisions.

In 1919 he went to New York City to join the Irving National Bank, where he was in charge of business extension and where he remained until 1921. He returned to the automobile field just prior to the advent of the Chrysler car and was in full charge of all manufacturing of the Chrysler Corp.

As previously mentioned, he joined Copeland in 1926 and now goes to the Kelvinator with a wealth of experience in electric refrigeration.

C. King Woodbridge

AFTER four years of successful direction of the Dictaphone Corporation, New York, C. King Woodbridge was elected executive vice-president and director of the Electric Refrigeration Corporation, Detroit, and was later made president. The corporation has since been named Kelvinator Corporation to tie up with its nationally advertised trade marked product—Kelvinator.

Mr. Woodbridge graduated from Dartmouth College and, immediately upon receiving his degree of Bachelor of Science, plunged into the profession of salesmanship which he has followed ever since. In fact he was a salesman before he finished college, having worked his way through school with various selling activities.

Mr. Woodbridge has been actively connected with a number of trade associations, having been president of the National Association of Office Appliance Manufacturers, president of the New York Advertising Club and for three years president of the International Advertising Association. He is now president of the Refrigeration Manufacturers' Council.

It was during his presidency of the International Advertising Association that Mr. Woodbridge was made Chevalier of the Legion of Honor of France because of his interest in international trade.

## Woodbridge Continues as President and Will Concentrate on Sales

## WILSON AGAIN TAKES ACTIVE CONTROL OF COPELAND COMPANY

GEORGE W. MASON was elected chairman of the board and general manager of the Kelvinator Corporation, Detroit, at a meeting of the board of directors held in New York City, December 10. He immediately resigned his position as president and general manager of Copeland Products, Inc., Detroit, and has taken up his duties at the new Kelvinator plant on Plymouth Road.

William Robert Wilson, chairman of the Copeland board, has resigned as president of the Murray Body Corp. of America and again resumes active leadership of the Copeland organization.

C. King Woodbridge retains the Kelvinator presidency. He and Mr. Mason have developed a close acquaintanceship as a result of their executive contacts in Detroit and each looks upon the other as a complement to his own experience and ability. It is understood that Mr. Woodbridge will devote his attention to sales problems spending a large share of his time in the field, while Mr. Mason will actively direct the headquarters business and manufacturing operations.

## COLLEGE PROFESSOR ELECTED HEAD OF ENGINEERS' SOCIETY

### Arthur J. Wood of Penn State College Succeeds George Bright

ARTHUR J. WOOD, of State College, Pa., was elected president of the American Society of Refrigerating Engineers at its annual meeting, which was held at the Hotel Pennsylvania in New York City from December 5 to 8. He succeeds George B. Bright of Detroit, Mich., retiring president of the society.

Approximately two hundred members attended the annual meeting, which opened with an address by George B. Bright, retiring president, in which he reviewed the activities of the society during the past year. During this period the society has added 387 members to its roster, the present membership being 1075 as against 688 one year ago.

Two technical papers were presented at the opening session, the first, "Thermal Processes in Petroleum Refining" written by Dr. R. Plank of Karlsruhe, Germany, was presented by Robert Brandt. This paper was devoted to the Edeleanu process of oil refining in which the selectivity of a solvent toward different hydrocarbons may increase with a decreasing temperature. This process has found application in this country with the use of refrigeration involving sulphur dioxide.

The next paper entitled "Heat Transfer in Multitube-Multipass Ammonia Condensers" by A. P. Kratz, H. J. Macintire and R. E. Gould of the University of Illinois, Urbana, Ill. He reported tests on a condenser with two shells of seven tubes each. A lively discussion followed as to the comparative merits of different types of apparatus, the different means of analysis of heat transmission effects, and the heat transmission theory in general.

At the special Wednesday evening session N. S. Diamant, consulting engineer of Detroit, spoke on "The Economical Use of Fins" as applied to radiators, evaporators and condensers. He described the action of heat with respect to the fin and showed that the amount of material used is balanced by the heat transfer.

A. M. Candy, research engineer of the Westinghouse Electric and Manufacturing Co., East Pittsburgh, Pa., delivered

*(Concluded on Page 4, Column 1)*

## REPRESENTATIVES OF FRIGIDAIRE DISTRICTS IN TWO-DAY SESSION

### Factory Heads Address Men at Dayton Meeting

Representatives of approximately 100 sales districts in the United States and Canada attended the winter convention of Frigidaire distributors and branch managers held at the Engineers' Club in Dayton, Ohio, on Dec. 4-5. Finances, business management, advertising, service, sales quotas, selling methods and regional conventions were discussed at various sessions of the two-day meeting.

Announcements of field changes were made at the opening session on Tuesday morning. The afternoon program was given over to addresses on sales engineering, sales promotion and sales educational work, and an address by E. G. Biechler, president and general manager of the Frigidaire Corp. After the meeting the representatives inspected an exhibit of products at the Moraine plant.

Comments on the exhibit were made by E. G. Biechler at the opening of the Wednesday morning program. R. D. Funkhouser, vice-president, spoke on dealers' financial problems. B. B. Geyer, of the Geyer Co., and E. D. Doty, advertising manager, were also speakers on the Wednesday afternoon program.

## LIQUID CARBONIC CORP. APPROVES PURCHASE OF DRY-ICE CORP. STOCK

### Ten Year Contract Authorized

Directors of Liquid Carbonic Corp. have approved the purchase of a substantial interest in the Dry Ice Corp. of America, according to an announcement appearing in the New York Times by W. K. McIntosh, president of the Liquid Carbonic. The agreement contemplates acquisition from time to time of additional stock, in the event that the Dry Ice Corp. shall require further funds for development purposes.

Directors of Liquid Carbonic Corp. have also authorized a ten-year contract with the Dry Ice Corp. for the production and sale to it of carbonic gas at such points as may be found to be economical and advantageous.

To carry out the various plans of expansion and to provide additional working capital, Liquid Carbonic Corp. has authorized the issue of additional shares of capital stock. It is estimated that the increased amount of capital stock authorized at the meeting on December 6, when the authorized shares were increased from 200,000 to 400,000 and a special stock dividend of 20 per cent declared, will be sufficient to provide all necessary working capital and to carry out the expansion plans of Liquid Carbonic Corp.

## 1929 SALES PLANS HOLD THE FLOOR AT SERVEL CONVENTION

### 90 Attend Two-Day Session at Evansville, Ind.

More than 90 sales representatives of Servel, Inc. concluded a two-day national sales conference at the Hotel McCurdy, Evansville, Ind., on Nov. 27. Optimism over the business outlook for the new year was much in evidence at the meetings, during which plans for the 1929 sales campaign were outlined. The gathering represented Servel salesmen from many parts of the nation. The New York delegation arrived here by special Pullman car.

The two-day program included talks by F. E. Sellman, Servel, Inc., New York, consulting engineer, who gave an address on the history, construction and operation of the Servel Electrolux refrigerator. George Roach, general service manager, Evansville, introduced the new line of refrigerators.

Evansville Servel representatives on the program were: E. H. Culver, commercial sales department; H. E. Burns, sales statician; A. H. Remsen, manager of territorial development department; and A. J. Bodenmuller, sales department. Lunch and dinner were served at the hotel. Tuesday afternoon was given over to a tour of inspection of the Servel plant.

# William Robert Wilson Resumes Active Management of Copeland

IN announcing the resignation of George W. Mason as President of Copeland Products Inc., William Robert Wilson, chairman of the board, states that he will resume active management of the company, including the duties of the presidency which he relinquished to Mr. Mason in April of this year. Mr. Wilson has recently resigned as president of the Murray Body Corporation of America having completed an operation in which he made a phenomenal record as an executive, having brought the Murray business from a receivership to a point where it is one of the first six of the large corporations of the country in the percentage of increased earnings for 1928 compared with 1927.

Mr. Wilson has had an unusual career in Detroit manufacturing circles. He first achieved prominence as personal assistant to John and Horace Dodge when Dodge Brothers were in the process of becoming one of the largest motor car manufacturers. He left the Dodge organization to join the Irving National Bank of New York as Vice-President in charge of new business. Following this he was elected President of the Maxwell Chalmers Automobile Company and it was in this connection that he assumed an important role in the organization of the Chrysler Company. Later he became president of the Guardian Trust Company of Detroit. He resigned this position to handle the receivership of the Murray Body Corporation of America and was later elected chairman of the board and president of the Murray Organization.

Acquiring important positions and directing the affairs of large business organizations seems to be a fixed habit with Mr. Wilson, as is indicated by his recent election to the chairmanship of the board of the Great Lakes Aircraft Corporation of Cleveland, a new enterprise which was absorbed the airplane business of the Glenn L. Martin Company.

It was Mr. Wilson who took hold of the Copeland Electric refrigeration business when it was a very small affair and established the company as one of the leading manufacturers in the industry. Copeland Products Inc., is frequently pointed to as an example of efficient and successful operation in the field of electric refrigeration owing to its regular showing of profits. During the first nine months of 1928 the net profits of this company have amounted to $274,687.00. A large national organization has been created and as a result of operations over the past three years, Copeland is in a very strong position.

Associated with Mr. Wilson in the direction of the Copeland business are E. H. Brown, vice-president, W. D. McElhinny, vice-president, C. W. Hadden, executive staff, N. L. Barger, service manager, S. W. Taylor, factory superintendant, Glenn Muffly, chief engineer, Charles Thomas, assistant chief engineer, Frank R. West, in charge of Silica Gel engineering, A. M. Taylor, advertising manager and B. P. Watkins, general purchasing agent.

William Robert Wilson

## WINNERS OF ELECTROLUX SERVEL DISPLAY CONTEST ANNOUNCED BY FACTORY

### Windows by Guy E. Chestnut and Roderic Peters Take First Prizes

Announcement is made of the winners in the window display contest held among Servel and Electrolux dealers during the fall months.

Guy E. Chesnut, superintendent of sales and service of the St. Joseph Gas Co., was awarded first prize for his Electrolux window. The display pictured the infernal regions with the refrigerator cold while mercury was shown boiling over in two thermometers at a temperature of 1497 degrees.

Second prize for Electrolux was awarded James E. Christie, Boston Consolidated Gas Co. The slogan "Silence is golden" was used with stacked bags of gold marked with different qualities of the machine.

First prize for Servel displays was awarded F. F. Nyc, Jr., Texas Power & Light Co., Kerrville, Texas. The window showed dog trains bringing the Arctic cold and storing it in the Servel refrigerator.

The second Servel prize went to Roderic Peters, Enco Products Co., Buffalo, N. Y. His exhibit tied in the news value of the election period with a Servel installation in a prominent home.

The third, fourth, and fifth prizes in the Servel contest went to W. S. Lynch, Public Service Corp. of Northern Illinois, Oak Park, Ill.; H. M. Ponder, Ponder Bros., Tacoma, Wash.; and George Hartwell, Rorabaugh-Paxton Dry Goods Co., Emporia, Kans.

In the Electrolux contest, third, fourth, and fifth prizes were awarded to J. B. Whitney, Consumers Power Co., Lansing, Mich.; Jack Vernon Thompson, Alabama Power Co., Montgomery, Ala.; and George Harris, Brooklyn Union Gas Co., Brooklyn, N. Y.

## ADDRESSES NEW YORK ELECTRICAL SOCIETY ON DOMESTIC REFRIGERATION

*(Concluded from Page 1, Column 1)*

same. They are machines for the removal of heat from the box, where it is not wanted, to the outside air where its presence is not troublesome. There are two general types: the electrically operated compression system, and the gas fired (or electrically heated) absorption system.

Both types utilize the evaporation of a liquid as the means for the removal of heat—an idea as old as the Indian water bottle. In the refrigerator, however, the liquid is conserved by recondensation in the compressor. Mr. Bennis illustrated his point by reference to a model, sectioned to show the mechanism. This illustrated the cycle through which the gas passes.

Mr. Bennis also described the gas refrigerator which paradoxically enough removes the heat energy from the box when energy in the form of heat would appear to be the only thing supplied on the outside. The cooling is produced by the evaporation of ammonia in coils within the box, as in the mechanical type. The gas is actually boiled out of a water solution at low pressure. In place of the compressor, however, the gas is reabsorbed in the water of the system, which has been cooled in the interim by the flow of tap-water over the cooling coils. The cycle is then back to the starting point. It should be noted here, that the heat energy from the box has been transferred to the stream of tap-water.

In both types, one of the most essential features is the quality of the insulation used in walls and doors. The function of this insulating material is to check the inflow of heat. It has been found that in the average box, 80 per cent of the total energy required goes to overcome this inward radiation.

Another general problem is that of sufficient storage space to allow for good circulation around all foods. If the box is too crowded, a local heating may occur which obviously defeats the purpose of the refrigerator.

Among the special types of refrigeration mentioned, was that of fish storage. Here the cleaned fish is cooled to about —20 degrees F., plunged in a tank of water, then removed to storage at a temperature below freezing. Due to the low temperature of the fish when it is plunged in water a skin of ice forms thereby hermetically sealing it. This prevents oxidation by exposure to the air.

In closing, Mr. Bennis stated that only 5 per cent of American homes have any type of refrigeration. Only 3 per cent of those electrically equipped now have electric refrigeration. The trend in this direction, however, is strongly marked, as is seen by the fact that more electric refrigerators were sold last year than in all previous years. The modern home owner is beginning to consider electric refrigeration as an essential.

## "REFRIGREATION WEEK" IN MAY PROPOSED BY N. E. L. A. COMMITTEE

*(Concluded from Page 1, Column 1)*

opinion that all industries and organizations interested in proper refrigeration should be invited to attend the next meeting.

The representation should include ice manufacturers, dairy associations, medical associations, manufacturers of ice boxes and refrigerators and allied organizations in the industry, also the American Gas Association.

C. E. Greenwood, commercial director of the National Electric Light Association referred to the fact that many central stations also operate ice companies and suggested various other organizations which would be interested in promoting food preservation. He proposed that the plan be made national in scope with provision for both national and local activities.

P. B. Zimmerman, sales manager, electric refrigeration department, General Electric Company, suggested that the program take the form of a "National Refrigeration Week," to be held some time during the month of May. Such a "week" would be preceded by several weeks of special advertising and general publicity. To carry out the plan it would be necessary to develop literature for national and local groups with full details regarding the activity. Elaborating the possibilities of the plan, Mr. Zimmerman suggested types of local activities including window displays, showroom displays, press articles, movie films, lectures at a general refrigeration show similar to that held in Portland, Oregon, and essay contest pertaining to better health through proper refrigeration, a text book for housewives, co-operation by the dairy interests such as a special label on milk bottles during refrigeration week, imprint on butter cartons, etc. He expressed the opinion that a comprehensive educational campaign along these lines, supplemented by other ideas which will be developed by the Committee, will make 1929 the biggest year yet experienced because of the great public interest now held by refrigeration.

Acting on a motion by F. D. Pembleton, assistant to the vice-president in charge of sales of the Public Service Gas and Electric Company, Newark, New Jersey, the Committee agreed to proceed toward the formulation of a plan based on Mr. Zimmerman's suggestions.

Among those who took part in the discussion were J. A. Corcoran, director of advertising, Kelvinator Corporation, Detroit, Mich., who expressed the opinion that the industry should be aroused to the possibilities of a general educational campaign sponsored and actuated by all of the diversified organizations in the refrigeration field and W. R. Winans, manager Public Utilities Division, Frigidaire Corporation, New York City, who counselled caution in the matter of attempting to put on demonstrations of food preservation on account of the large organizations required for handling a job of that kind.

A sub-committee was appointed to draw up details of a plan for the proposed "National Refrigeration Week," consisting of J. Hall Truman, Jr., *chairman*, Walter Daily, C. E. Greenwood, Earl Whitehorne and J. A. Corcoran.

The following members were present:

C. L. Dunn, The Ohio Public Service Co., Cleveland, O.
W. R. Winans, Public Utilities Division, Frigidaire Corp., New York City, N. Y.
H. W. Hennig, Public Service Gas & Electric Co., Newark, N. J.
J. E. North, Electrical League, Cleveland, O.
Walter Daily, General Electric Co., Cleveland, O.
P. B. Zimmerman, Electric Refrigeration Dept., General Electric Co., Cleveland, O.
Louis S. Leavitt, Electric Light & Power, Chicago, Ill.
J. A. Corcoran, Kelvinator Corp., Detroit, Mich.
F. B. Pembleton, Public Service Gas & Electric Co., Newark, N. J.
M. C. Terry, Westinghouse Electric & Mfg. Co., Mansfield, O.
J. Hall Truman, Jr., Stevens & Wood, Inc., New York City, N. Y.

C. L. Dunn, chairman of the committee, presided, and J. Hall Truman, Jr., acted as secretary of the meeting.

## A PROGRAM OF EDUCATION

WE must conduct a national educational campaign, touching the entire industry with the knowledge of the need for the benefits of refrigeration by the entire citizenship of our nation. We must carry through with a definite program from N. E. L. A. headquarters and put it into the hands of the leaders in every community. This program should be inaugurated by the Refrigeration Committee and the efforts of the Committee should be supplemented by the services of specialists now engaged in this work in the industry both in and out of the utility field.

—C. L. Dunn, chairman, Refrigeration Committee, National Electric Light Association.

## GAS MEN SEE TWO NEW ELECTROLUX MODELS AT NEW YORK CONFERENCE

### Three Foot Unit Designed Especially for New York Apartments

Gas utility men from the East and Middle Western states attended an Electrolux Servel sales and service conference held at the Hotel Biltmore in New York, N. Y., on Dec. 3-4, by Servel Sales, Inc. Col. Frank E. Smith, president of Servel, Inc., opened the conference with an address to the visiting utility men. F. E. Sellman, consulting engineer, spoke on general service and engineering.

On the afternoon of the opening day, the delegates visited the Electrolux Servel and the Consolidated Gas Co. laboratories. They also inspected a number of apartment houses which have been equipped with Electrolux refrigerators.

H. W. Foulds, vice-president in charge of sales, outlined sales policies and plans for the year 1929 at the second day session. He was followed by G. L. Roach, who spoke on field service promotion, and W. R. Reynolds discussed the advertising program for the coming year.

At the conference two new Electrolux models were announced. One a household model, EL 10A, has a capacity of 10 cubic feet, and the other model, EL 3, has a capacity of three cubic feet. The latter model is especially designed for installation in apartment houses in New York City. November was reported to be the biggest month in the history of Electrolux sales. During that period 1,200 boxes were sold.

At present there are more than 10,000 gas refrigerators in the metropolitan territory of New York. During the past eleven months New York City gas companies have sold 50,000 gas ranges, and the sales of gas refrigerators come second.

## New York Electrical Society Views Demonstration of Electric Refrigeration

(See Article on Page 1, Column 1)

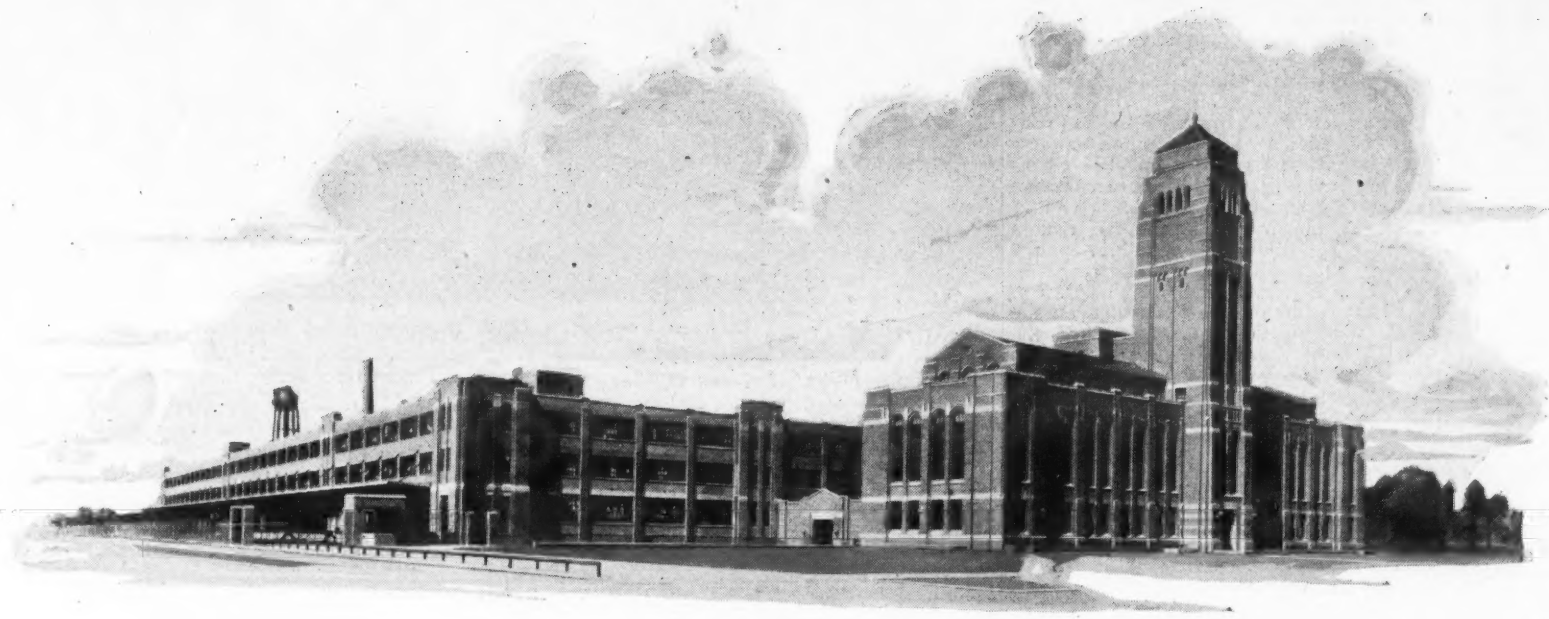
## DEPT. OF COMMERCE TO STUDY DISTRIBUTION COSTS FOR ELECTRICAL MERCHANDISE

At the request and with the co-operation of the National Electrical Wholesalers Association, the Domestic Commerce Division of the U. S. Department of Commerce, Washington, D. C., is conducting a study of wholesale distribution costs for electrical goods. The records of a particular firm are subjected to a detailed analysis, and its sales of electrical goods for an entire year are taken by items in order to work out inventories by commodity classification.

### Electro-Kold Gets Order for 165 Units from 'Frisco Branch

Orders for some 165 Electric-Kold electric refrigerators were received at the Spokane factory branch as one day's business, and came to them through their San Francisco factory branch, according to H. L. Masterson, general manager. The majority of the machines were ordered in groups for apartment house installation.

# EVERY YEAR THE KELVINATOR FRANCHISE IS GROWING MORE VALUABLE



*The Home of Kelvinator, Detroit*

***Because of Kelvinator's unequalled experience in pioneering both domestic and commercial electric refrigeration . . . . because of Kelvinator's extraordinary production facilities . . . . because of Kelvinator's outstandingly fine performance.***

The Kelvinator Domestic line, including both self-contained and remote installations, offers the most complete assortment of household models under any single name on the market today. Kelvinator cabinets are without doubt the finest ever built both from the viewpoint of appearance and that of dependability.

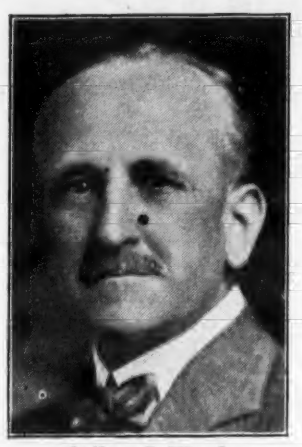
The Kelvinator Commercial line, complete in every detail, provides efficient and economical refrigeration for every possible purpose. The new Kelvinator cross fin cooling unit has been called the industry's greatest achievement. And there is a fin coil to fit every refrigerator and cooling case. A Kelvinator dealer has the opportunity to provide exactly the right kind of refrigeration that is needed everywhere.

There is opportunity to become associated with the hundreds of foreminded business men who have established themselves under the Kelvinator dealer franchise. It is an unusual opportunity to participate in the accrued benefits of fifteen years of success in developing a product which has won a commanding position in a fast growing market. Kelvinator has won dealer and customer confidence through Quality of Product and Sound Business Policies. The tremendous demand for electric refrigeration today, is largely due to the pioneering efforts of Kelvinator, upon which a great industry has been built. It will pay you to write us and learn of the possibilities and the advantages which a Kelvinator dealership offers you.

The sound policy and steady growth of Kelvinator has developed a proven product, an organization of specialists, and a potential market of unlimited possibilities.

## KELVINATOR SALES CORPORATION
## DETROIT

## New President of A. S. R. E.



**Arthur J. Wood**

PROFESSOR of mechanical engineering, Pennsylvania State College, who was elected president of the American Society of Refrigerating Engineers at the annual meeting at New York City last week.

Professor Wood bears a name known to refrigeration for many years both through his activities and those of his father, which originally interested him in this field. DeVolson Wood was a mathematician and thermodynamic expert at Stevens Institute of Technology for nearly a generation, the author of one-time standard tables of ammonia properties, and whose name, together with such of his associates as Denton and Jacobus, stands for pioneer work in laying the foundation of refrigeration as an applied science.

The technical interests of the new A. S. R. E. leader have been divided between railway mechanical engineering and refrigeration. At a meeting point of the two fields, he has done a great deal of work on the design of freight and refrigerator cars, acting as a consultant for the Pennsylvania Railroad. Strictly in the field of refrigeration practice he has done further work in the design of ice plants.

Professor Wood's most notable contributions to refrigeration have probably been through technical research. With laboratory equipment he designed, he made early investigations of the specific heat of ammonia, closely confirmed by the recent more elaborate researches. As head of the mechanical engineering experiment station at Pennsylvania State, he has for some years directed the considerable heat transmission work that has been done there.

Professor Wood is a member of the A. S. M. E., A. A. A. S., S. P. E. E., Pi Tau Sigma and Sigma Tau. His technical writings are voluminous, including a standard text book on locomotive operation and train control. He has taught refrigerating engineering courses for many years.

His responsible interest in the Society in many past offices and his leadership in engineering, have brought congratulations to the A. S. R. E. as to the wisdom of the choice of their new president.

## PROGRAM OF THE 24TH ANNUAL MEETING OF REFRIGERATION SOCIETY

*(Concluded from Page 1, Column 5)*

a lecture at this session on the application of welding to modern manufacturing. He explained the use of welding in the fields of machinery manufacture and structure and presented the economic feature along with construction details. Alvin H. Baer, vice president of the society for 1929, presided at this session.

The field of application of refrigeration was treated in the Thursday morning session by three papers. E. H. Ford, manager of refrigeration department of Cherry-Burrell Corp., Syracuse, N. Y., opened the meeting with a talk on "Refrigeration for Dairies and Creameries." He dealt with the design of typical boxes for dairy use and went into practical consideration affecting it. The design of low and high side equipment and layouts of plants were covered in this paper. In addition the application of intermediate size refrigerating machines was discussed.

An interesting invention was the subject of a paper presented by Crosby Field, of the Flakice Corp., New York, N. Y. He described the development of the Flakice machine which produces ice in sheets by a rapid continuous process. It consists of a cylinder, which is filled with cold brine and revolved rapidly in water. This causes a sheet of ice to form on the cylinder and the ice is removed by warping the sheet metal service.

Dr. J. B. Churchill next presented a paper prepared by W. C. Ackerman, of the agricultural experiment station of the University of New Hampshire, Durham, N. H. It considered the large and small types of equipment for rural refrigeration and explained the uses of both types on the farm. It also contained recommended specifications for refrigerating machines used on farms where conditions and applications are different. G. A. Horne was presiding officer at this session.

On Thursday afternoon the members of the society journeyed on buses to the Brooklyn Navy Yard and inspected the refrigerating equipment on the navy supply vessel, U. S. S. "Bridge." In addition the shops and other ships in dock were also inspected.

A. J. Wood, president-elect, presided over a joint meeting of the American Society of Refrigerating Engineers and the American Society of Mechanical Engineers which was held in the Engineering Societies Building on Friday morning. Two papers were read at this joint session. G. E. Hulse, chief engineer of the Safety Car Heating and Lighting Co., New Haven, Conn., spoke on "Freight Car Refrigeration by an Absorption System Using Silica Gel." He gave specifications for satisfactory freight car refrigeration and explained in detail the elements of the apparatus he has developed in an endeavor to meet them. The construction of the car was also treated and the performance of a complete unit in operation under test conditions was described.

Joseph S. Stepanov of the Worthington Pump and Machinery Co., Harrison, N. J., in a paper entitled "A Graphical Treatment of Heat Exchange Problems." discussed heat exchange problems referring to surface-heat and direct-contact heat exchangers using counter-current and parallel flow of substances.

The domestic refrigeration session, with George B. Bright presiding, opened Friday afternoon with a talk by E. T. Williams of Servel, Inc., New York, N. Y., in which he outlined the effect of the shaft seal on the development of the refrigeration industry and the small machine. He covered the various types of shaft seals in his lecture and pointed out the relative advantages of each type.

R. S. Taylor, assistant director of the Electrolux-Servel Research Laboratory in New York, N. Y., followed with an article on "Heat Operated Refrigerating Machines of the "Adsorption Type" in which he described the adsorption system and possible types of appartus with possible combinations of refrigerants. Mr. Taylor gave in addition a review of recent developments in the industry.

The domestic refrigerator load was next discussed from a central station point of view by H. A. Snow of the Detroit Edison Co., Detroit, Mich. He showed the characteristics of the load and gave results of tests conducted in a number of homes in Detroit.

On Friday evening the annual dinner-dance held at the Hotel Pennsylvania was largely attended. Dr. Harvey N. Davis, president of the Stevens Institute of Technology at Hoboken, N. J., was guest of honor. George B. Bright officiated as toastmaster at the banquet. Robert L. Sackett, Dean of Engineering at Pennsylvania State College, Major Edward J. Rice and Arthur J. Wood, president-elect, were also speakers on the program at the banquet.

With the reading of two papers at the refrigerator session and the report of the refrigerator performance committee, the annual meeting was brought to a close, Saturday noon. A paper entitled, "Measurement of Rate of Heat Flow into Refrigerator Cabinets" by W. A. McPherson of the Edison Electric Appliance Co., Chicago, Ill., and W. J. Ettinger opened the session. Mr. Ettinger described the development of a new method of measuring the performance of a refrigerator, applicable to special research work, using an evaporating arrangement with ammonia.

W. J. Miskella, of the Finishing Research Laboratories of Chicago, Ill., spoke on "Finishing as Related to Refrigerators". He stated that the problem of finishes to resist cold lacks the study that has been given those designed for higher temperatures. He gave the latest developments in the use of paints, varnishes and lacquers and dealt with equipment for finishing refrigerators.

C. F. Belshaw in his refrigerator performance report stated that the development of electric refrigeration has a great deal to do with the development of the cabinets used as well as the mechanical means of cooling it, and the industry has discovered that it is really selling two things. He suggested that manufacturers and buyers would profit, if information as to the standard conditions of measurement of refrigerator performance, as applied to a particular line of boxes, were stamped on each nameplate.

## NEW OFFICERS OF A. S. R. E.

*President:* Prof. Arthur J. Wood, head, Dept. of Mechanical Engineering, Penn. State College, State College, Pa.

*First vice-president:* Harry D. Edwards, works engineer, Carbide & Carbon Chemicals Corp., 30 E. Forty-second St., New York, N. Y.

*Second vice-president:* Alvin H. Baer, sales manager, Frick Co., Waynesboro, Pa.

*Treasurer:* George A. Horne, vice-president, Merchants Refrigerating Co., 17 Varick St., New York, N. Y.

*Secretary:* David L. Fiske, American Society of Refrigerating Engineers, 37 W. Thirty-ninth St., New York, N. Y.

*Directors:* (six elected at this meeting):

Dr. D. R. Harper, associate professor of physics, Union College, Schenectady, N. Y., and consulting thermal engineer, General Electric Co., Schenectady, N. Y.

Col. Frank E. Smith, president, Servel, Inc., 51 E. Forty-second St., New York, N. Y.

George Lange, vice-president, American Ice Company, 41 E. Forty-second St., New York, N. Y.

S. C. Bloom, president, S. C. Bloom & Co., 53 W. Jackson St., Chicago, Ill.

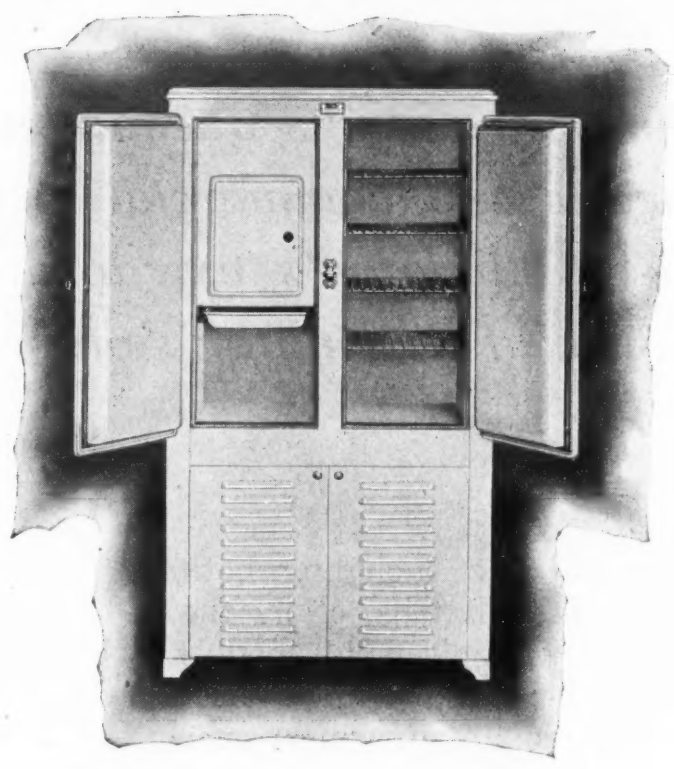
Robert F. Frazier, sales manager, Refrigeration Division, Tennessee Furniture Corp., 343 W. Twelfth St., Chattanooga, Tenn.

Alfred W. Oakley, (re-elected), Merchants Refrigerating Co., 17 Varick St., New York, N. Y.

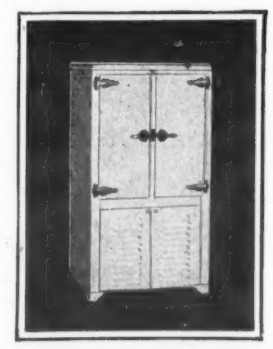
## American Society of Refrigerating Engineers Hold 24th Annual Banquet

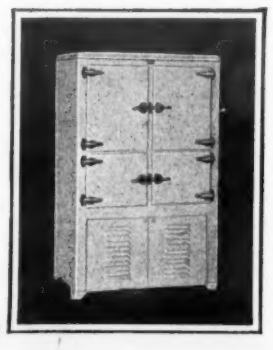
**Between Courses, A.S.R.E. Banquet, Hotel Pennsylvania, New York, Dec. 7**

**LASSEN** — TEMPERATURE — PRESSURE — **CONTROLS**
POSITIVE RANGE AND DIFFERENTIAL ADJUSTMENT
NON-DETERIORATING MERCURY TUBE SWITCH—MEET ALL REQUIREMENTS
GOODNOW & BLAKE MFG. CO. 3840 BEAVER STREET DETROIT, MICH.



Rex
THE COMPLETE LINE OF MECHANICAL REFRIGERATION CABINETS





**EACH succeeding series of fine REX Cabinets has been a little nearer to that combination of beauty and perfect performance which is the REX goal . . . For REX, in thirty years, has learned how to achieve beauty of line without sacrifice of inner construction. Here is a cabinet of longer life—a perfect home for a quality refrigeration unit.**

**Many manufacturers of units and numerous dealers are planning to increase their 1929 sales with the latest series of fine refrigeration cabinets by REX.**

REX MANUFACTURING COMPANY
CONNERSVILLE, INDIANA, U.S.A.

# Theatre District Display Annex Attracts Valuable Prospects For San Antonio Concern

## Salesman in Charge of Window Finds Exhibit Affords Fine Opportunity to Talk to Husband and Wife Together

By Ruel McDaniel

Wright Bros.' Display in the Theatre District

IS it possible to sell electric refrigerators "over the counter," in the fashion of handling dry goods remnants, Irish potatoes, and pork and beans? Well, not exactly; but almost. At any rate, that has been the experience of Wright Bros., electrical contractor-dealer concern, which has made an enviable record in the sale of General Electric refrigerators during the last two years in San Antonio, Texas. This does not mean that the owners of this firm do not recognize the vital importance of proper education, demonstration and service in making sales. It does mean, however, that it has found that good display space and facilities are just as important to the electric refrigeration dealer as to the department store, the haberdasher or the green goods stand.

The importance of display has been proved through the sale of nearly a score of plants through an unusual display window maintained by the company.

About two blocks from Wright Bros.' main store, 405 Main Ave., a real estate syndicate composed in part by the owners of this firm, own a building on the corner of Main Ave. and Houston St. The latter is San Antonio's leading thoroughfare. Diagonally across the street from this corner is the Majestic theater, the city's leading vaudeville house. The traffic at this corner is heavy all day and well into the night, because of the importance of the location in the retail shopping zone and because of the theater crowds.

Wright Bros. secured the use of the window space of this corner building and remodelled the windows to conform to its individual needs. Accordingly, there is an open window space about seven feet wide extending from the corner backward on Main Ave. for a distance of some 30 feet. The space is brilliantly lighted with a series of flood lights, making it by far the brightest spot in the vicinity. The interior of the long window is finished in a color that blends properly with the refrigerators on display. Actually, the window section has been transformed into a miniature display floor. There is a door by which salesmen and prospects may enter.

The company keeps a salesman in the "store" during business hours every day. Then in the evening a man comes down and stays in the window until after the first Majestic performance is ended, which is about half-past nine o'clock. Thus the company is able to demonstrate the refrigerators on display at the times when the crowds in the vicinity are largest.

"The location of the window, plus the special facilities we have provided for making it unusually attractive during the day as well as at night, naturally draws a good many people to the place," says Mark Wright, one of the owners of the Wright Bros. firm. "Naturally a good window display is valuable, regardless of what you have to sell; but we have added more than double the value of this space through turning the place into a miniature store.

"When a person sees a refrigerator in a display he may promise himself that he will investigate; but it is so easy to forget that resolution. Here, however, we create the desire for further information through an attractive display, and then make it convenient for the prospect to come right in on the spur of the moment and investigate."

The man on duty is a practical refrigerator salesman who not only knows how to sell, but how to explain electric refrigerators. The display space is liberally supplied with advertising matter concerning this particular make of machine. This is given to visitors by the man on duty, and it is left where it is easily seen and picked up.

"We have sold a considerable number of machines right out of this window," says Mr. Wright. "It makes selling so much easier than the more formal method of selling. We carry samples and stock at our main store and sell out of it, of course; so we have a good opportunity to compare the results in each place.

"We find that even though a refrigerator costs a great deal more than the average article which is displayed and sold through show windows, display can be made to work for the electric refrigerator dealer just as efficiently as it will work for any store. Some merchants contend that it is a little too much to expect to sell articles that cost above one hundred dollars merely through creating a demand for them through window displays; but we find that the argument is wrong when electric refrigerators are considered.

"It is logical that we should get results out of this display 'store.' It is seen by excellent prospects whom we can get in touch with in no other way. Some of them are people who have the cash to buy anything that they really want.

"This experience has convinced us that you cannot give electric refrigerators too much display; and if you can arrange to keep the store open in the evening for a while so that persons who have leisure time on their hands can come in and investigate, so much the better."

## Public Service Gas and Electric Co. Shows Big Increase in Sales

The Kelvinator sales organization of the Public Service Gas & Electric Co., of New Jersey, at their monthly meeting held in Newark September 14, sailed this Kelvinator dirigible into port and paid off the prize winning members of the crew. The 26 offices of the organization were represented on the dirigible by pasting the pictures of the merchandising assistants of the different offices in the windows of the cabin. The Camden office, led by Frank Pembleton, showing a 400% increase in August over August of last year, won first prize of $100.00. In the front row center, are R. R. Young and Frank Pembleton of the Public Service, and Messrs. Dorsett, Crabtree, Underhill and Johnson of Kelvinator Corporation.

## Frigidaire District Men Attend Meeting in Crawfordsville, Ind.

A number of Frigidaire district representatives attended a meeting held in Crawfordsville, Ind., on Nov. 22. H. Beck, of Dayton, Ohio, was in charge of the meeting.

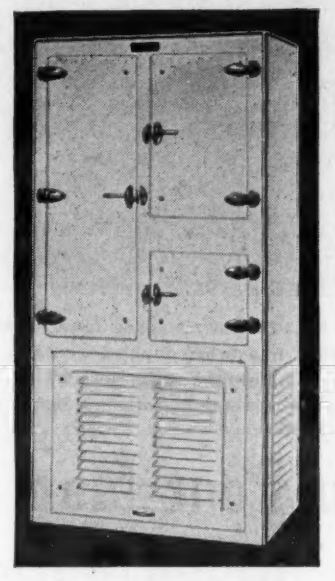

# The Bohn Franchise

*For* those dealers who appreciate the merchandising possibilities of a nationally known, and very complete, line of refrigerators.

During thirty-two years of quality manufacturing, the BOHN organization has been responsible for over eighty per cent of the scientific advance in refrigerator construction.

BOHN was the first to build an all-porcelain refrigerator and is today the world's largest manufacturer of these beautiful and practical cabinets.

A large production enables us to offer the lowest prices in the company's history.



*All-porcelain base cabinet models in 5-6-7-9 and 12 cubic feet.*

*Nothing finer can be said of a refrigerator than "It was built by BOHN."*

**BOHN REFRIGERATOR COMPANY**
SAINT PAUL, MINNESOTA

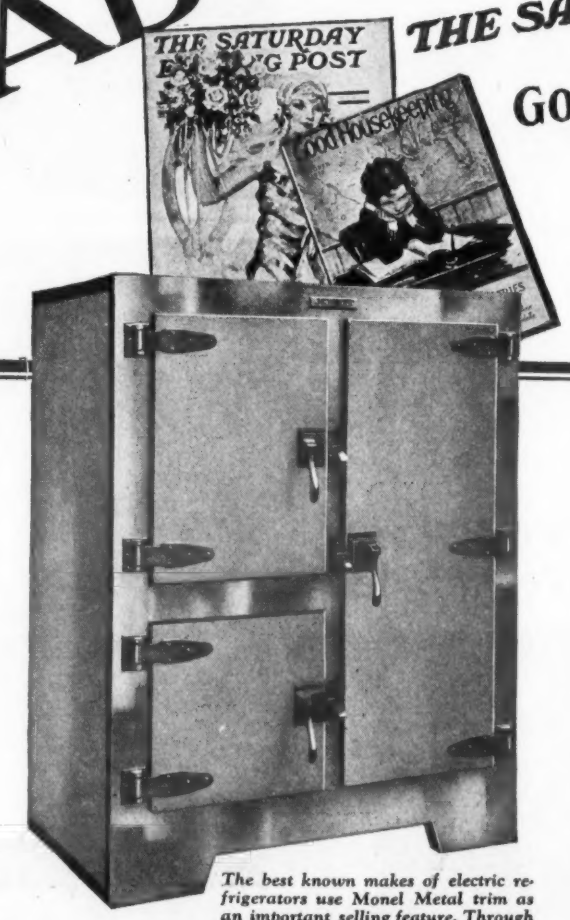
NEW YORK CHICAGO BOSTON



# COLOR ADVERTISING in

THE SATURDAY EVENING POST

Good Housekeeping




*The best known makes of electric refrigerators use Monel Metal trim as an important selling feature. Through national advertising the public is being taught that "quality trim denotes quality throughout".*

## MAKING IT STILL EASIER TO SELL MONEL METAL TRIMMED REFRIGERATORS

Monel Metal trim is already established as a quality feature on many leading makes of refrigerators.

With the advent of the new color advertising in The Saturday Evening Post and Good Housekeeping—impressive advertising reaching millions of refrigerator buyers—Monel Metal trim will become an increasingly important talking point.

National advertising is the mother of national prestige. The prestige that is born of Monel Metal national advertising will lend a helping hand to those refrigerator manufacturers who take advantage of Monel Metal's silvery good looks, its cleanability, its rare wearing qualities, and use it as trim on their quality products.

The modern kitchen is a Monel Metal kitchen. You can cash in on the trend toward Monel Metal by featuring the Monel Metal trim on your product.

SEND FOR DETAILS OF MONEL METAL ADVERTISING PLANS

Monel Metal is a technically controlled Nickel-Copper alloy of high Nickel content. It is mined, smelted, refined, rolled and marketed solely by The International Nickel Company. The name "Monel Metal" is a registered trade mark.

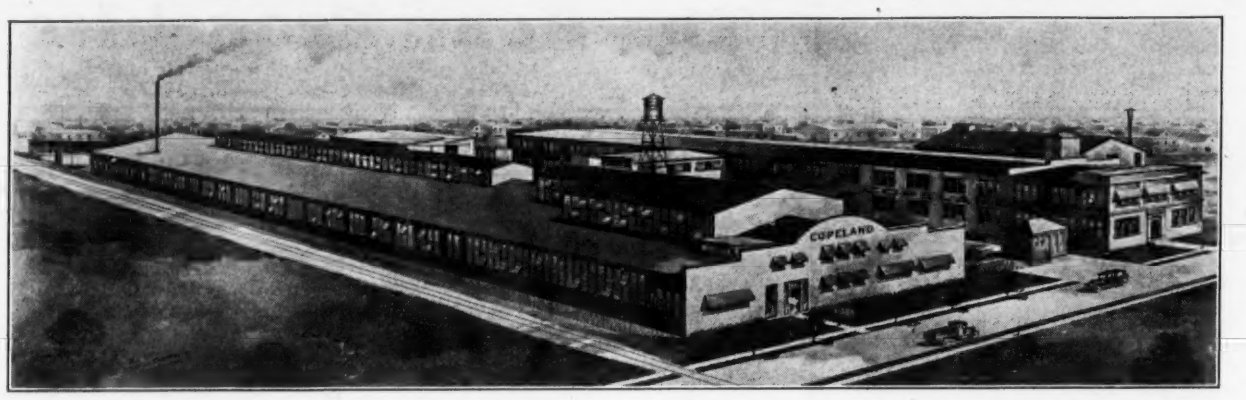
MONEL METAL

THE INTERNATIONAL NICKEL COMPANY (INC.) 67 WALL STREET, NEW YORK, N. Y.


# Savage Arms Displays Mercury Compressor at Dairy Industries Exposition

**Savage Mercury ice cream cabinets and compressors were displayed by the Savage Arms Corp., Utica, N. Y., at the recent Dairy Industries Exposition held in Cleveland.**

# Copeland's Newly Expanded Plant




**Manufacturing space for Copeland electric refrigeration has been doubled recently through acquisition of the building at the left. The structure at the right is the original factory building, which also houses the offices of several of the company officials. The new structure was completely redesigned when it was taken over and is now laid out for production according to the most modern methods.**

# Du Pont Man Stresses the Importance of Durability In Finish for Refrigerators

## Ease of Application is Also Vital Factor But Should Be Secondary in Consideration of Manufacturer

By R. C. Péter
E. I. du Pont de Nemours & Co.
Parlin, N. J.

IN selecting a finish for mechanical refrigerators two people deserve prime consideration, the purchasing householder and the finishing superintendent.

A mechanical refrigerator represents a considerable investment to the average householder, and is usually purchased on the installment plan. During the eighteen months installments are being paid, the owner is apt to be very critical of the appearance and performance of the machine, and only while it is giving satisfactory service can friends and acquaintances be considered as belonging to the potential market for mechanical refrigerators.

The finishing superintendent demands that the finish be applied on the cabinet with a minimum of labor, and that satisfactory results be obtained without the necessity of too rigid control of plant conditions. It is poor policy, however, to improve the working properties of a finish, at the expense of durability. It is therefore advisable that the manufacturer select the most durable finish available, and if necessary modify the finishing room to handle the product. The wisdom of this can be checked by consultation with service managers of any of the present day manufacturers.

Refrigerator cabinets in general are constructed of ordinary steel which may be smooth metal such as auto-body steel or in some cases of a rougher grade such as vitreous enameling stock. The primer serves two functions, first, to bind the subsequent coats to the metal, and, secondly to provide protection against rusting. In either case a primer must be used. We find that an oil primer, containing a relatively high percentage of oil, is necessary in order to obtain a film highly impervious to moisture, flexible, and with good adhesion to the metal. Such a "long oil" primer is inherently slow drying. Slow drying would of course hold up production, and so one of two methods must be used in order to speed up the drying time. Sometimes "dryers" are added. These "dryers" take up oxygen from the air, and pass it on to the oil. The oxygen combines with the oil and causes it to harden. Unfortunately the dryers do not cease their activity at this point, but continue to cause oxygen to combine with the oil with the final result that the film becomes brittle and friable. The preferred method is to heat the film, which hardens the film to the desired extent with less over-oxidation than prolonged drying at a lower temperature. The higher the temperature, the faster the oil hardens, but if too high a temperature is used the adhesion is impaired between the primer and the next coat. We find that baking for two and one half hours at 250 degrees F. gives about the best results and of course such a length of drying time fits into most production schedules.

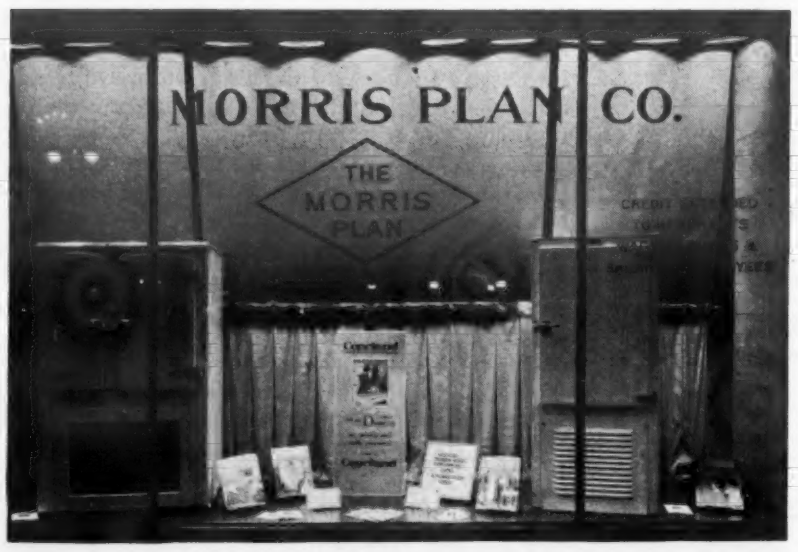
The primer can be dipped on some pieces, but must be sprayed where the shape of the surface is such that the excess liquid will not drain off properly. For a temperature of 250 degrees F. a gas, oil or electric oven must be used. The temperature should be automatically controlled, but whether a batch oven or a continuous conveyor type oven be used depends upon the volume to be handled. When a steam heated oven is employed the temperature usually does not exceed 160 F. and an over night drying schedule is necessary. This increase in drying time is considerable and is due to the fact that if more than four hours is necessary for drying a coat of finishing material, it is not possible to schedule two coats for application on the same day.

An inherent characteristic of pyroxylin finishing materials is that the top surface of each coat reproduces the irregularities of the surface upon which it is applied. This is because their quick drying prevents them from flowing out smoothly and levelling out the surface. Therefore it is necessary to apply the top coats of pyroxylin enamels over a perfectly smooth surface.

Where vitreous enameling stock is used it is necessary to use a surfacer. When a pyroxylin surfacer is used a sufficient quantity of it must be applied to build up the low spots, and then a part of the surfacer over the high spots must be sanded off. This requires a considerable volume of surfacer, and much labor in sanding, but no drying oven is necessary. As compared with a

*(Concluded on page 7)*

# Morris Plan Co. and N. Y. Copeland Distributor Co-operate on Term Sales




Selling electric refrigeration through the Morris Plan Bank has brought many orders to the Copeland Refrigeration Co., New York, distributor for Copeland Products, Inc., Detroit.

Models of Copeland electric refrigerators with attractive art settings were used in seven different Morris Plan Bank branches in Manhattan and the Bronx. The displays staggered so that Copeland displays were on view in one or more branch banks over a period of several weeks.

The Morris Plan Co. offered a scheme of financing which made it possible for buyers to acquire Copeland machines on terms which brought them within reach of all.

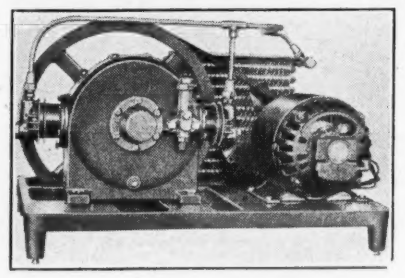
**WE CAN SUPPLY YOUR COMPRESSOR NEEDS**

*with the*

REFRIGERATION IcELECT

COMPRESSOR UNITS

For Household Use



For Commerical Use

COMPLETE HIGH SIDE ASSEMBLY

The IcElect Compressor Unit is designed for Refrigeration purposes. It is remarkably efficient, quiet and durable. Engineers are continually praising its rugged and practical design.

You should have our booklet "The Heart of Refrigeration." It explains in detail.

IcELECT REFRIGERATION CORPORATION
OMAHA, NEBRASKA

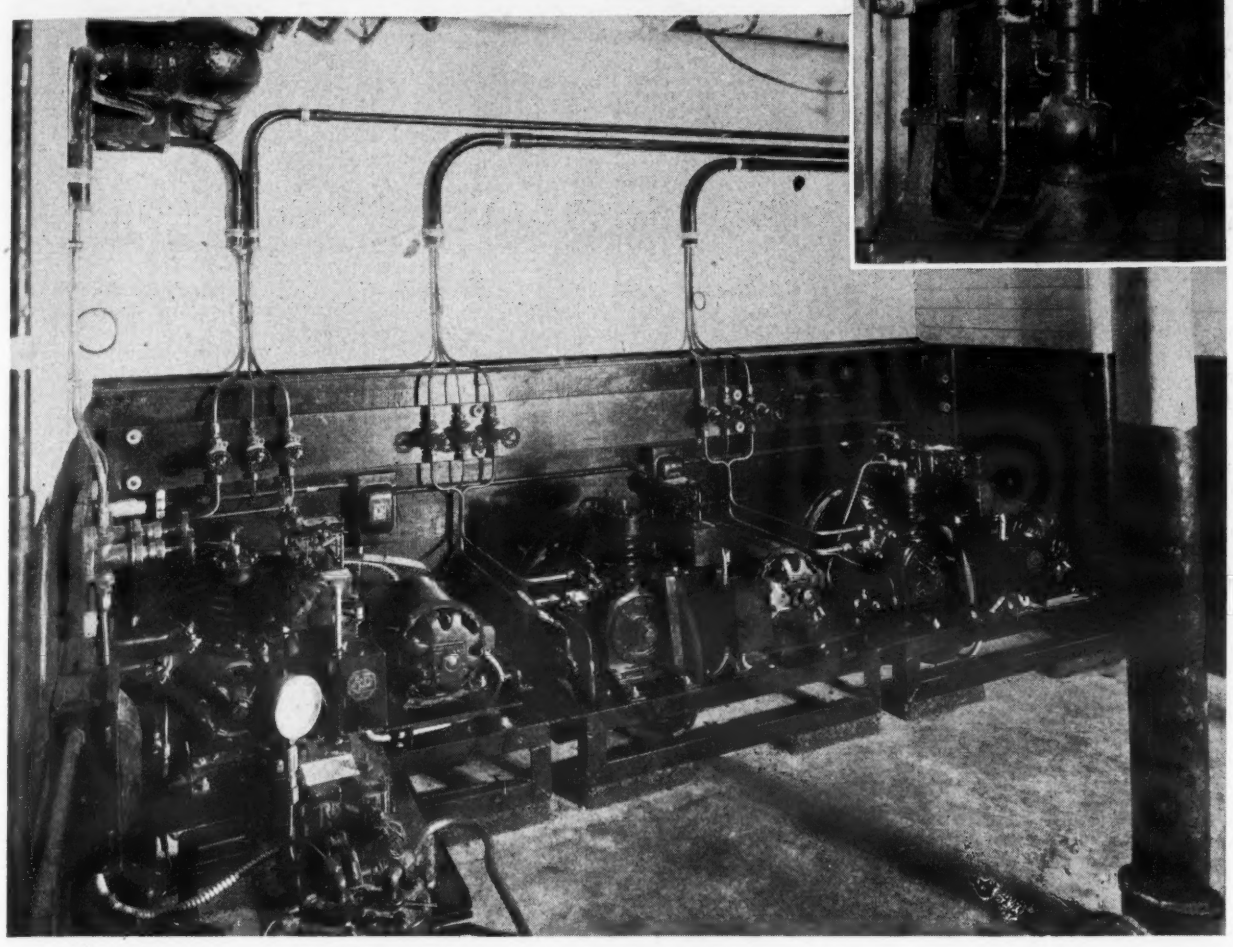
♦ ♦ PATENTED AUTOMATIC LATCHES ♦ ♦

HERE are shown latches and hinges that are giving service and satisfaction on many of America's outstanding refrigerators. In the upper left is shown our 4061 reversible roller latch, a very sturdy model with a large following because of its simple, fool-proof design. Series 4014, shown in the upper right, is exclusive with us — a powerful, positive, automatic roller latch for commercial installations. Series 4074 in the lower left is an automatic model with an extra strong, deep throw, in which the shape of the strike acts as a wedge, closing the door tight under all circumstances. At the lower right is series 4044, the most simple automatic reversible latch ever devised, with a patented spring and bolt action that is absolutely positive. All of these models are available in heavy nickel, genuine chrome plate, or any special finish desired. We will be glad to call with a full line of samples. If you prefer, we will mail samples with complete information and prices.

SERVICE AND BEAUTY IN METAL

GRAND RAPIDS BRASS CO.
GRAND RAPIDS. MICHIGAN

# $5,000 Frigidaire Installation In Portland Apartment



**An installation recently made in the Ambassador Apartments by the Portland, Oregon, Frigidaire Corp. branch included one large Ligonier refrigerator with 20 cu. ft. capacity, for the use of the janitor, and smaller boxes in each of the forty-nine apartments. The smaller ones are cooled by No. 4 coils and the one large one by a No. 16 coil. In the insert is the ammonia compressor which the $5,000 Frigidaire installation replaced.**

## DURABILITY IS GIVEN AS MOST IMPORTANT FACTOR IN REFRIGERATOR FINISH

*(Concluded from page 6)*

pyroxylin surfacer, an oil surfacer offers the advantages of more solid material per gallon of liquid, and good flow. This latter characteristic reduces the labor of sanding. However, we cannot recommend an oil surfacer for use on mechanical refrigerators unless it be baked at the same high temperatures as recommended for an oil primer. It can be baked in the same oven used for the primer.

Where smooth metal is used no surface coat is necessary. While this sometimes increases the raw materials inventory, we believe the use of smooth is generally more economical.

The top coats of pyroxylin enamel not only add color and texture to the surface, but greatly increase the durability of the finish. The enamel should give the desired results in the fewest possible coats, that is, a minimum volume of material should be required to cast the film necessary for protection and appearance. A certain thickness of film is always necessary to give proper protection. Greater hiding power than this not only unnecessarily increases the manufacturing cost (and so the sales price) of the enamel, but is undesirable from the standpoint of quality. In production the sprayman will always spray to a standard shade or color, rather than to a standard film thickness. If the hiding power and the film thickness are balanced, the inspector and the spray operator can tell at a glance that if the finish is the proper uniform color, the necessary protection is being obtained. On the other hand, if the enamel should give complete hiding in one coat, although three coats were necessary for protection, a large percentage of the cabinets would go out with too thin finish, which would be unsatisfactory in service.

So far we have given our attention primarily to the householder rather than to the finishing superintendent, to whom the following considerations apply.

It is usual practice to apply and bake the primer (and surfacer) to the metal sheets before they are assembled on the box. After assembly the cabinet is sent to the finishing room for the top coats of enamel.

Every effort should be made to have the cabinets reach the finishing room with their surfaces in proper condition to receive the finish. By this we mean that extremely rough metal should be rejected before it leaves the tin shop. Puttying should be done at the end of the assembly line, and force dried if necessary, so that the putty will be completely dry before it arrives in the finishing room. Careful inspection at this point, and insisting upon these details, will speed production, and prevent unnecessary labor and materials being used on pieces which are foredoomed to rejection in the final inspection.

Cleanliness is absolutely necessary in the finishing room, and is absolutely impossible without the proper surroundings and equipment. A waterproof composition should be used for floor and walls, and the whole room flushed out each night with a fire hose. The best modern spray guns should be used, and proper ventilation and spray booths should be provided.

In the finishing room attention must be given to proper stirring and thinning of materials. All our care in properly proportioning the ingredients is lost if a portion of the pigment is left in the bottom of the can. Merely shaking a can is not enough—it must be stirred thoroughly with a paddle or tumbled overnight on an approved tumbling machine. It is well worth while to have a separate room for stirring and mixing, and to have a man responsible for this work.

The finishing room should be provided with finishing materials which run absolutely uniform in quality and working properties. Considering the labor and overhead expense necessary for application, it is very foolish to buy cheap materials. A good finish will cost the manufacturer less than two per cent of the retail selling price of a mechanical refrigerator, while a poor finish will account for a very large percentage of his complaints. For best results adhere to the following principles:

(1) Buy the best finish available.

(2) Apply it exactly as the supplier directs.

(3) Give your finishing room every opportunity to do good work.

## OPPORTUNITIES FOR FOREIGN TRADE LISTED BY DEPT. OF COMMERCE

Firms and individuals may obtain further information on the announcements listed below by applying to any one of the districts or co-operative offices of the Bureau of Foreign and Domestic Commerce. A list of the offices and their addresses appeared on page ten of the June issue of ELECTRIC REFRIGERATION NEWS.

The asterisks (*) indicate that the inquirer would act as both purchaser and agent.

35023 Ice cream freezers, 40 to 60 quart capacity (China)
35024 Refrigerators (ice boxes) (Italy)
*36026 Refrigerating machinery, for fishing industry (Spain)
35031 Household electric appliances (Canada)
35031 Soda fountains (Canada)
34951 Refrigerators, household, electric (Germany)
*35148 Soda fountains and fixtures (Canada)
35102 Refrigerator units, household, electric (Germany)
35103 Refrigerator units, household, electric (Germany)
35104 Refrigerators, household, electric (Germany)
35101 Household electric appliances, refrigerators, washing machines, etc. (Switzerland)


INSULITE
the Wood-Fiber Insulating Board

*Prevents*
**ODORS**
*In Refrigerators*

Refrigerators that are insulated with Insulite are free from all unpleasant odors even under the most drastic moisture conditions. The individual fibers are chemically waterproofed and preserved in a manner which prevents "souring" or promotion of fungus growths which cause rot and disintegration.

Fifteen years of faithful service in railway refrigerator cars has proven the durability of Insulite, and qualifies its use in "better insulated refrigerators." It will remain sweet indefinitely—stand up and function during the entire life of any refrigerator.

Leading refrigerator manufacturers today are using Insulite for the above reasons, as well as its strength, accurately-cut-to-size features, and high insulating efficiency.

*Technical details, prices and samples will be sent upon request*

THE INSULITE COMPANY
*Refrigerator Sales Department*
737 Conway Bldg. Chicago, Ill.

*In Commercial* Refrigerators *it's* McCRAY

INQUIRE WHERE YOU WILL, in the field of commercial refrigerator manufacture, the name which commands instant and undisputed respect is McCray.

This is a prestige and position won by more than a third-of-a-century—39 years to be exact—devoted to building refrigerator equipment of the highest quality for every purpose. The McCray nameplate on a refrigerator has come to be recognized everywhere as the sterling mark of quality.

Dealers in electric refrigeration of any type find in McCray refrigerators a double selling advantage: first in the immediate acceptance of the McCray name and its prestige, and second in the enduring efficiency of the service it renders. Pure corkboard insulation is used in every McCray.

McCray builds refrigerators in many styles and sizes for every purpose—in stores, markets, hotels, clubs, restaurants, hospitals, institutions, florist shops, and homes. Write for catalogs and details.

McCRAY REFRIGERATOR SALES CORPORATION
Dept. 66. Lake St., Kendallville, Indiana

McCRAY REFRIGERATORS

# ELECTRIC REFRIGERATION NEWS

*The Business Newspaper of the Refrigeration Industry*

PUBLISHED EVERY TWO WEEKS BY

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DECEMBER 19, 1928

## Directory Service

THE first directory of electric refrigeration manufacturers published by the NEWS about two years ago, consisted of a few columns of rather meager information—all that was available at the time. Since then various revisions have been published as additional data was secured. Comments of readers have given ample verification of the belief that this service is very useful and valuable.

In the next issue, January 2, 1929, the NEWS will present the most complete directory of manufacturers which has ever been compiled in this industry. As a part of the preparation for this "Annual Catalogue and Directory Number" the broad classifications of refrigeration equipment and supplies have been taken up one at a time in order to revise the listings. During the past three months special surveys have been made covering gas-operated refrigeration systems (September 26), ice cream and dairy applications (October 10), related merchandise (October 24), domestic and commercial machines (November 7), refrigerator cabinets (November 21), parts, materials and accessories (December 5), and production and service tools (December 19).

Manufacturers are now being requested to furnish further corrections and additions to the data for the complete directory of all classifications to be published January 2. This will include:

(1) Names and addresses of all known manufacturers of refrigerating systems (including both compression types operated by electricity or other source of power and absorption types operated by gas or other source of heat) for domestic, commercial and industrial applications, together with trade names, company officers and department heads, specifications of apparatus and range of sizes (illustrated).

(2) Manufacturers of refrigerators and cabinets designed for use with mechanical systems for domestic, apartment house and commercial installations, including display cases, coolers and freezers for food stores and food service establishments, ice cream cabinets and soda fountains and other dairy product applications, water coolers, beverage cabinets, vending machines and other special applications, together with trade names, company officers, specifications and range of sizes (illustrated).

(3) Manufacturers of parts and materials for refrigeration equipment, also accessories and supplies used in the installation, operation and control of self-contained, remote and multiple systems, together with trade names, company officers, etc.

(4) Manufacturers of machinery, tools, instruments and supplies used in the manufacture, transportation, installation, testing and servicing of refrigeration systems.

(5) Sales, advertising, educational, laboratory and other services designed for, or adapted to the use of, the refrigeration industry, including school and correspondence courses and books on refrigeration.

(6) Manufacturers of appliances, novelties and other products related to refrigeration or suitable for distribution through the electric refrigeration trade.

(7) Associations and organizations in the refrigeration industry with headquarters, officers and membership, also leading associations in closely related fields.

(8) A complete list of refrigeration patents issued during the past year, with number, date and patentee.

**Merry Christmas**

## NEWS TELEPHONE NUMBER CHANGED

Owing to the adoption of the dial system the telephone exchange through which ELECTRIC REFRIGERATION NEWS is served has been changed from Northway to Columbia. The private branch exchange of the NEWS may now be obtained by dialing Columbia 4243 or 4244.

## FRIGIDAIRE ANNOUNCES PRICE REDUCTIONS ON NEW DOMESTIC MODELS

Full page advertisements which appeared in daily papers of the larger cities throughout the country recently announced price reductions on the new Frigidaire models, effective December 11, 1928.

The advertisement stated that public acceptance of the new Frigidaire models has resulted in the greatest increase in volume in the history of the business and that this volume has made further production economies possible.

## DETROIT SECTION A. S. R. E. TO HOLD ANNUAL MEETING DEC. 28

The annual meeting of the Detroit Section of the American Society of Refrigerating Engineers will be held Friday evening, December 28, at the Detroit Engineering Society clubhouse, 478 W. Alexandrine avenue. At this meeting officers elected for the coming year will be announced.

### Southern Frigidaire Dealers Hold District Meeting at New Orleans

About sixty-five Frigidaire dealers from Louisiana and Mississippi attended a district meeting held at New Orleans, La., on Monday, Dec. 10. E. W. Allen, manager of the New Orleans Frigidaire branch, was in charge of the meeting and announced price reductions on the new domestic models.

Plans were discussed at the meeting for attending the regional convention to be held by the Frigidaire Corp. in February at Memphis, Tenn.

## Frost

**It Just Accumulates**

"The present day refrigerating engineer may claim for his craft a respectable antiquity," says Robert M. Anderson, mechanical engineer, Stevens Institute of Technology, in the December issue of *Professional Engineer*. In bringing out his point, he quotes historical data beginning with King Solomon.

The total area of cold storage and packing plants in United States equals 667 million cu. ft., according to an article "Refrigerated Space Available in the United States" in *Ice and Refrigeration*.

Among household inventions listed in the December issue of *Scientific Americans* is the heat tablet. It is an importation from Switzerland. It resembles in appearance an elongated sugar tablet. The tablet burns with a hot blue flame like that of alcohol but will not melt or evaporate. It is light weight, practically odorless, and non-explosive.

A Wisconsin concern has announced a new form of insulation against cold and heat for buildings. It is sprayed on the inside surface of sheathing between wall studs by means of compressed air. The insulation is made of pulverized newspapers and magazines treated by a fireproof chemical. A binder of silicate of soda is used to hold the insulation. It insulates against sound as well as temperature.

"Inventions in the near future will be in food and medicine," predicts Christopher James in *Advertising and Selling*. He bases his prediction on the fact that mankind has pretty well caught up with needs in transportation and communication but not in suitable food.

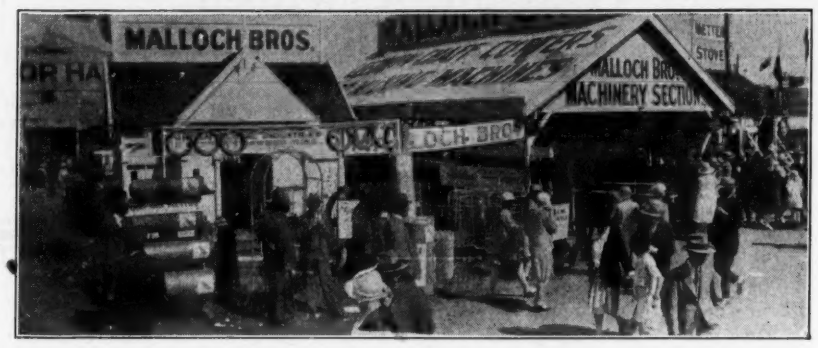
This world is so full of a number of things—the trouble is trying to keep up payments on all of them.

There are 26,213 banks serving the United States and their assets increased $10,000,000 a day in the last year. Total deposits amount to $53,244,698,000.

*Life* suggests the slogan "Own your own ohm" for the campaign in Texas for municipal ownership of electric power plants.

An article on home service in a recent electrical publication begins "When the first home was established, that is, when Eve said to Adam, 'Did you blow out the pine torch and put the monkey out?"

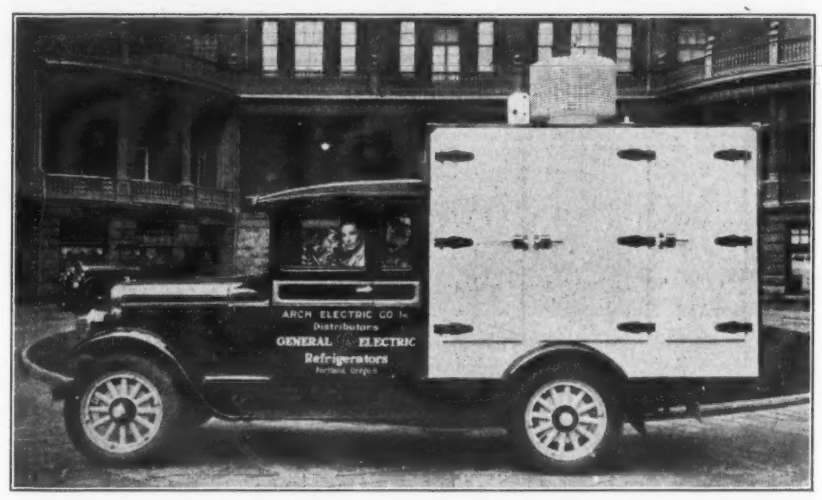
## Kelvinator Exhibit at Agricultural Show in Western Australia




Malloch Bros., Kelvinator distributors of Western Australia, report exceptionally bright prospects for the coming season. At the Royal Agricultural Show held at Perth they had a special Kiosk, devoted solely to Kelvinator demestic and commercial equipment. On "Peoples' Day," October 10, the show was attended by a record crowd of 51,424 persons.

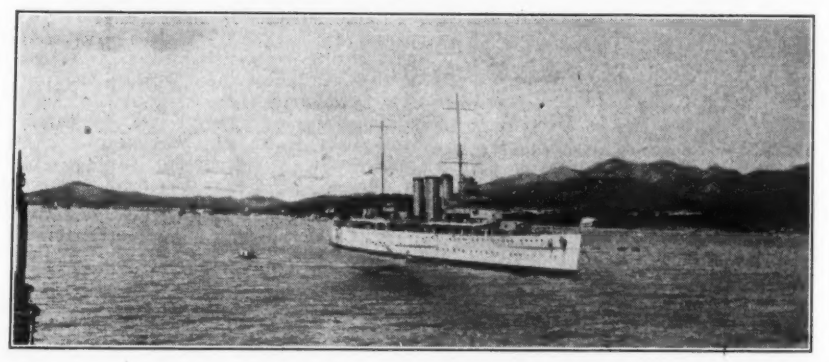
Malloch Bros.' Kelvinator business for the first two months of the current season is already nearly double their total for all of last year.

## Arch Electric Co. Delivery Truck Has Advertising and Utility Value




The Arch Electric Co., Portland, Oreg., distributors of General Electric refrigerators, is making its deliveries in a novel truck. The truck body is in all details an exact replica of the PL-17 model. It is exactly 50 per cent larger than this model except in width. The truck is large enough to deliver, uncrated, one PL-17 with unit and hoist in the load. It will handle two R-52 refrigerators.

## British Warship Has Kelvinator



Guarding British rights in the Far East this British warship, stationed at Weihaiwei, North China, depends upon electric refrigeration to safeguard food on board ship. A model 272 Kelvinator is installed in the officers' ward room.

This photo was furnished by John F. Stevens, Asiatic manager of Kelvinator now at Shanghai, China, who points to the fact that trained service organizations are to be found in every important port as one of the reasons that Kelvinator is a favorite on ships all over the world.

## Refrigerated Advertising Truck Used To Dispense Beverages

The advertising and demonstration truck of the Moxie Co. of Massachusetts, shown above, has special Kelvinator equipment. A Kohler electric generator furnishes power for a senior condensing unit with two special coils and tanks.

On the truck can be seen two replicas of the Moxie bottle. The large bottle keeps a supply of the beverage at the proper temperature and when opened serves as a booth or bar from which drinks can be dispensed at fairs and games. Neon lights are used to illuminate the truck for night demonstrations and movable side pieces on the truck display advertising.

This truck, which recently made its debut in Boston, has aroused considerable attention wherever it has been seen in hat city.

# Colorado Utility Features Electrical Kitchen on Attractive Float

**This model kitchen took part in a state fair parade at Pueblo, Colo. It was exhibited by the Southern Colorado Power Co. The float was so constructed that none of the working parts of the truck were visible. Even the driver sat in the enclosed part in the center of the float. Five girls, employees of the company, played ukeleles as the float progressed. Illumination through white frosted globes brought out in the night parade the details of the model kitchen. The electric refrigerator and electric range shared prominence in the exhibit.**

## TEN COMMANDMENTS FOR REFRIGERATOR SALESMEN

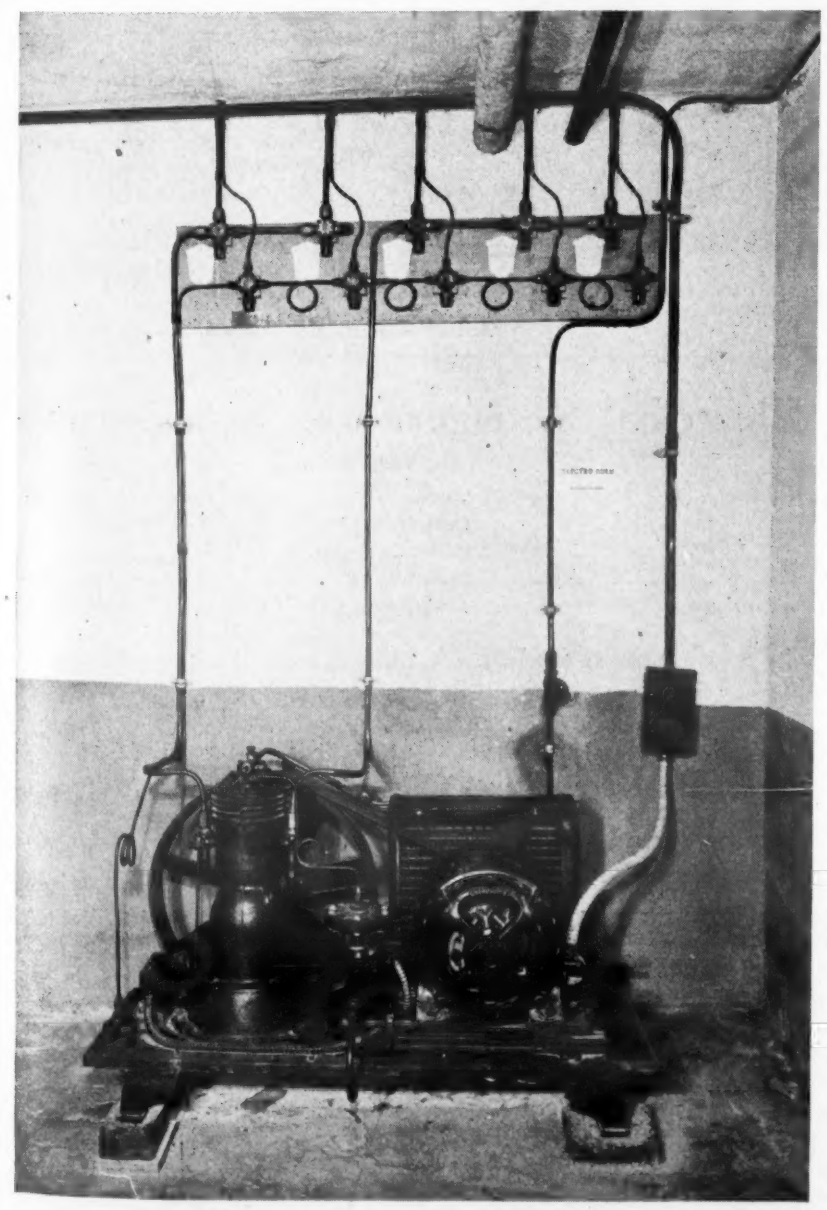
Ten rules for the successful selling of electric refrigerators are posted in the salesrooms of dealers in the territory of the San Joaquin Light & Power Corp., Fresno, Calif. They are contained in an article entitled, "Ten Commandments of Refrigerator Selling," appearing in the current issue of *Electrical Merchandising*. These rules, which were drawn up by H. H. Courtwright of the Valley Electrical Supply Co., Fresno, for the use of dealers co-operating with that company are as follows:

1. Have a woman in the store.
2. Color in display.
3. Cleanliness.
4. Take advantage of fairs and parades.
5. Make clean delivery of the machine.
6. First impressions.
7. Instruction in correct use.
8. Follow up the sale.
9. Develop prospects among friends of purchasers.
10. Get out in the field.

### General Electric Salesman Closes 42 Orders in Six Weeks

Bob Donovan, salesman of the Mississippi Power & Light Co., Jackson, Miss., sold 42 General Electric refrigerators during six weeks in four small southern towns, two having populations of 500 and the other two 1,500 inhabitants each. At Inverness, Miss., he succeeded in selling a lunchroom a large model.

# Electro-Kold Machine Handles 27 Apartment Refrigerators



**The Electro-Kold Sales Company of Portland, Ore., have recently installed twenty-seven Electro-Kold units in the Olympic Apartments. The accompanying photograph shows a typical installation, using a one horsepower, water cooled compressor to refrigerate the entire apartment.**

**The Olympic Apartments were built by the S. E. Henderson, Inc., a firm which has used over 350 Electro-Kold units. This company has given the Electro-Kold considerable repeat business which they attribute to neat and careful installations as well as the satisfactory performance of equipment.**


AMERICA'S MOST BEAUTIFUL REFRIGERATOR

MODEL G-1

Rhinelander Airtite Refrigerators are built to accommodate any Standard Electric Unit · These cabinets sell easily because they combine correct construction with rare beauty · · Write for prices and information on how you can increase your sales and profits by handling Rhinelander Airtites · · ·

Rhinelander Refrigerator Co. · Rhinelander, Wis.



..STOPS 20% to 35% of Refrigerating Losses

**The Dry-Zero Pliable Slab is easily installed and hermetically sealed in a single operation by pressure alone, due to the specially designed and patented sealing flange, found only in Dry-Zero. There is no waste or loss of time or labor. Dry-Zero will not swell, crack or settle.**

FROM the standpoint of efficiency alone, Dry-Zero justifies its choice. It is from 20% to 35% more effective than any insulant in commercial use. To the manufacturer of refrigerating units, this remarkable superiority means an even closer approach to perfect operation. It means that your customers will own a refrigerator in which insulation has reduced unnecessary waste through heat leakage and has lowered operating costs.

Think what a powerful weapon it places in the hands of your sales force. Add to that the permanence of Dry-Zero, for it may be practically said that Dry-Zero will not decay or deteriorate throughout the life of the insulated structure . . . Add to this the lightness in weight. Dry-Zero weighs but 1.1 lb. to 1.17 lb. per cubic foot . . . Add to this its unusual resistance to moisture absorption and the fact that Dry-Zero is odorless, sanitary and vermin-proof . . . and then make a mental note that Dry-Zero comes in a variety of forms, cut to specific sizes for ease, speed and economy of application. Could a more perfect case be built for any insulating material. Could a more perfect insulant be made?

In every reasonable test, without exception, Dry-Zero has maintained its position of overwhelming superiority. . . . It is accepted as the most effective insulant known.

Let us assist you in your refrigerating problems. Let us prove by actual test that Dry-Zero will raise your own standard of fine performance.

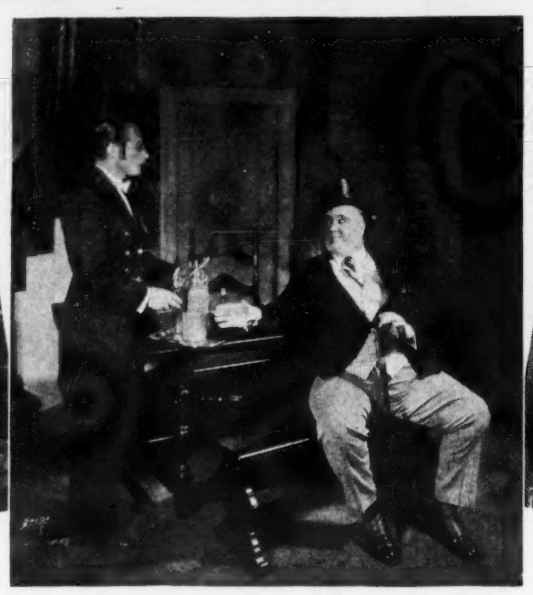
DRY-ZERO CORPORATION CHICAGO, ILL.

DRY·ZERO

# Electric Refrigeration Accessory Appears Prominently In Popular Movies

Below—Scene from the Universal picture, "The Midnight Sun," which features Laura La Plante, and a Sparklet syphon.

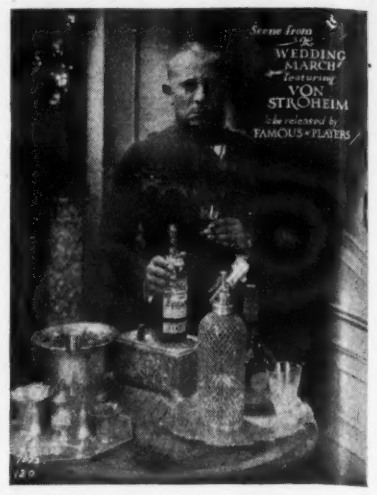
Above—Again Sparklets takes a prominent place in the picture starring Laura La Plante, "Butterflies in the Rain."



Above—Charles Ruggles and Frank McIntyre in a scene from the popular musical comedy, "Queen High," at the Ambassador Theatre, New York City.

Above—Sparklets helps "Sensation Seekers," Universal picture featuring Billie Dove and Huntley Gordon.

Von Stroheim uses a Sparklets syphon in Famous Players picture, "The Wedding March."



Harry Langdon in "Long Pants" shows his acquaintance with Sparklets syphon.

Sparklets has its place in the picture "The Claw," featuring Norman Kerry.

Mary Lawler, Clarence Nordstrom, Luella Gear, and Gaile Beverly in a scene from the popular comedy, "Queen High," at the Ambassador Theatre, New York City.

## FILM PUBLICITY FOR SPARKLETS PART OF PROMOTION CAMPAIGN

The movie "stills," exhibited above are typical of a number of productions in which the Sparklet syphon has appeared recently. The frequency of the appearance of Sparklets in popular motion pictures leads to inquiries by ELECTRIC REFRIGERATION NEWS as to the manner in which this valuable type of publicity is secured. The "property man" of the movies is the key to the situation according to O. Edwin Fein, vice-president and general manager of Sparklets, Inc. Commenting on this type of publicity he says:

"It offers tremendous possibilities for creating a psychological acceptance of articles used in the movies and theatres, which usually are standard bearers for everything new and unusual.

Obviously, any well-rounded sales promotion campaign must capitalize every channel of potential public influence, and because of the keen interest exhibited by the public in new styles, new exterior and interior decorations, new architectural designs, new modes in period furniture and everything that represents and exemplifies modernism, in which the Sparklet syphon plays its contributing part, we made special arrangements with the motion picture companies, through their property men, to use a Sparklet syphon in every picture where it might be advantageously utilized.

"In the legitimate theatre, in many cases, it has been possible for us to have a line added by the producers so that the Sparklet syphon would be specifically mentioned by name, and with the rapid development of the spoken cinema, made possible through vitaphone and movietone, I believe that in a comparatively short time, millions of motion picture fans may hear the Sparklet syphon specifically mentioned and be unquestionably influenced by this unusual form of publicity.

"I am also inclined to believe that some of our progressive refrigeration manufacturers might find it possible to consummate a similar publicity arrangement for the exhibition of electric refrigeration in some domestic scene, and local refrigeration dealers might find it possible to capitalize similar forms of sales promotion and publicity."

### Des Moines Utility Gives a Series of Demonstrations

The Midwest Refrigerator Co., Iowa distributor of General Electric refrigerators, is co-operating with the Des Moines Electric Co., their largest Des Moines retailer, in a winter sales campaign.

Demonstrations are being given at the Electric Company's salesrooms.

### G. D. Runnels to Manage New Portland Electrolux Branch

G. D. Runnels is manager of the Electrolux, Inc., branch in Portland, Oreg. This branch has recently been established in the Public Service Bldg. at Portland.

## Kelvinator Makes Remarkable Record On the Road to Mandalay

THEY are shipping more than soldiers "East of Suez" these days. American products going out over the highways and byways of commerce are rapidly gaining a sound foothold in the Far East.

While electric refrigeration may be safely classed as one of our recent blessings, the fact that it is being used and enjoyed all over the world is a striking tribute to modern methods of distribution. An example of fine performance under the most unfavorable conditions is illustrated by the following report of a test of a Kelvinator made on board the R. M. S. Assam, operating on the river between Rangoon and Mandalay, Burma.

"Although this standard domestic unit is not designed or intended for the heavy duty on board our mail steamers and was further handicapped by the use of a ¼ H. P. 110-volt motor on a 65-volt circuit with proportionate reduction of speed and power, the following results speak well for the efficiency of Kelvinator:

**Load—**

190 lbs. of perishable food
3 doz. bottles soda } replaced as used.
6 bottles beer

**Test**—To determine ability to maintain refrigeration when the current was off from 8:45 a. m., to 4:45 p. m., the hottest hours of the day.

8:45 a. m., cabinet temperature 40°, deck temperature 70° F.
4:45 p. m., cabinet temperature 47°, deck temperature 93° F.

**Result—**

Rise in cabinet temperature only 7° F.
Rise in deck temperature 23° F.

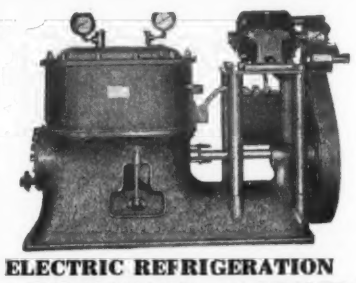
Ice yield from water at 80° F. while current was on from 4:45 p. m. to 7:45 a. m. 15 lbs. This test commenced when cabinet was warmed up to 47°.

The above tests were made under ordinary service condition of opening cabinet doors to obtain supplies in addition to the hourly temperature readings."

(Signed)
M. R. DIX, Chief Engineer;
F. MUSGRAVE, Commander.

### Company Formed to Sell Copeland in Tulsa

The Tulsa Copeland Refrigeration Co., 317 S. Boston Ave., Tulsa, Okla., has been formed to handle Copeland electric refrigeration. The officers of the new company are: Harry O. Bland, president; A. T. Coffin, vice-president and general manager; John Madden, secretary, and E. S. Horn, director. A. E. Taylor is in charge of sales.

**ELECTRIC REFRIGERATION DISTRIBUTORS and DEALERS**

You need the PEERLESS line of commercial units.

PEERLESS units give you a COMPLETE line, ranging from 1 to 10 tons.

Sixteen years of successful manufacturing and merchandising of ice machines are behind the PEERLESS name. Our record warrants your most exacting investigation.

Write or Wire

**PEERLESS ICE MACHINE CO.**
515 W. 35th St.
CHICAGO, ILL.

**Electrical Refrigeration Accessories**
**For All Machines**

| | | |
|---|---|---|
| Can Lifters | Valves | Rim Seals |
| Monel Cleaner | Gaskets | Rubber Hose |
| Brass Fittings | Gauges | Thermometers |
| Carbon Brushes | V Belts | Nizer Top Sections |
| Copper Tubing | Motors | Rubber Breaker Strips |
| Dehydrated Oil | | Fan and Pulley Assembly |

Lightweight, Sturdy, Efficient Brine Pump

SPECIAL PRICES TO MANUFACTURERS AND LARGE USERS

Distributors for
Ansul's Dry S02—Knox Non-Fouling Lid—Kulair Compressors

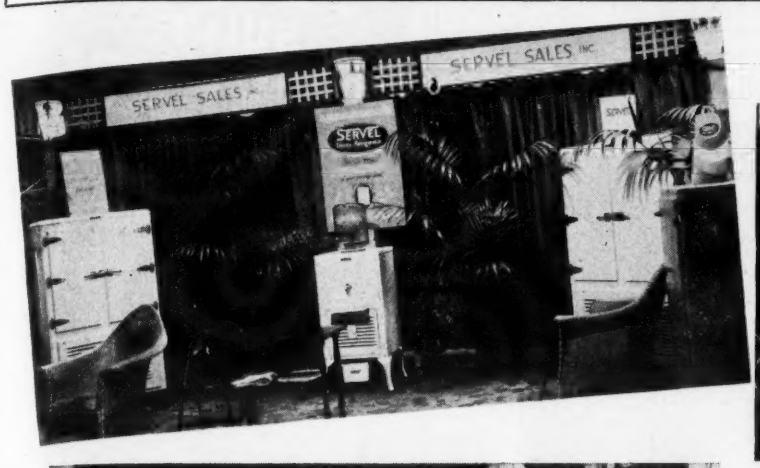
**DAVIES B. & E. CO., INC.**
2016 SO. BANCROFT ST., PHILADELPHIA, PA.
STOCK SHIPMENTS

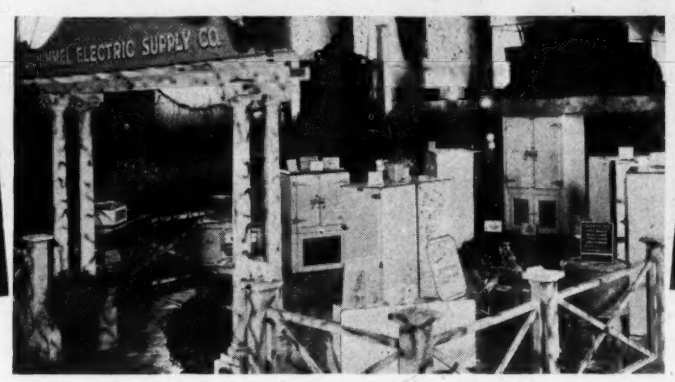
*COMING! SOON!*

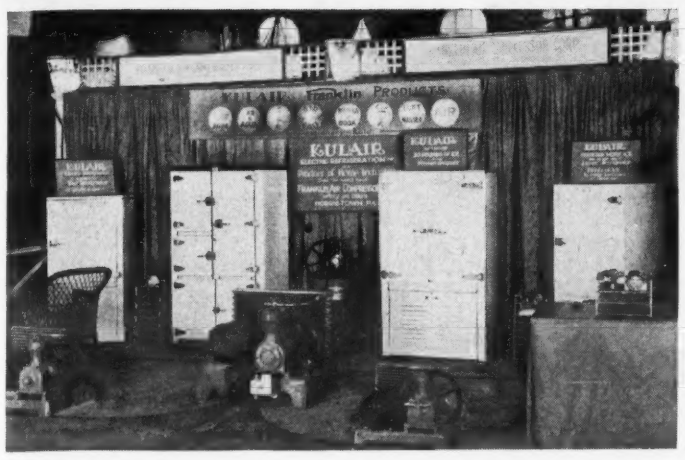
**FARKIN? TOOLS**
FOR ELECTRICAL REFRIGERATION

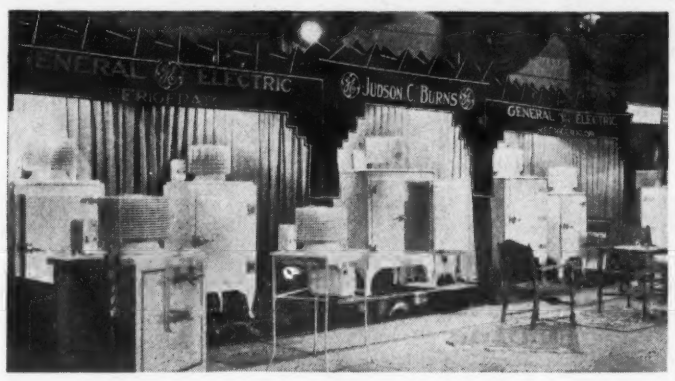
*WATCH FOR ANNOUNCEMENT OF DETAILS!*

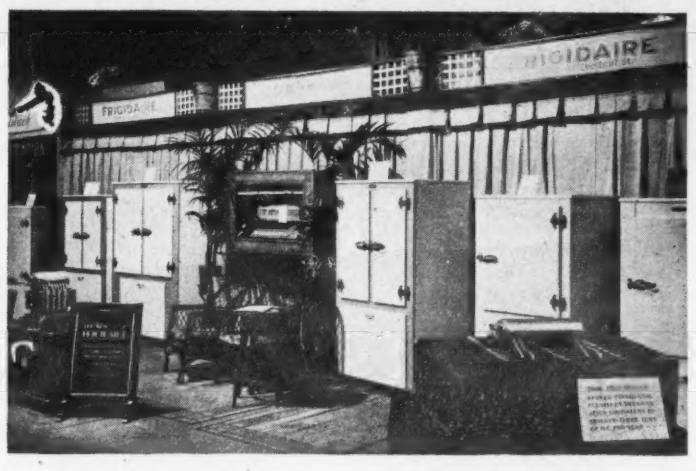
# Philadelphia Firms Attract Attention to Refrigeration at Electric Show






**Upper row, from left to right, shows displays of Servel, Copeland and Kelvinator refrigerators by local representatives.**

**Lower row shows Franklin, General Electric and Frigidaire models exhibited.**

## FOUNDER OF WELSBACH CO. CONTINUES BUSINESS ACTIVITIES IN VIENNA, AUSTRIA

### Inventor of the Gas Mantle Was a Pupil of Bunsen at Heidelberg

Probably few people know that Karl Freiherr Auer von Welsbach, the inventor of the Welsbach gas mantle which formed the basis for the organization of the Welsbach Co., Gloucester City, N. J., is still alive and flourishing in health. Recently, he celebrated his seventieth anniversary in Vienna, Austria, and in spite of his age, leads an active life, directing his large chemical laboratories.

His invention of the Welsbach mantle was one of the biggest single steps taken in the history of artificial illumination. With the same amount of fuel it gave 10 times as much light as the open flame and although the first mantles marketed were very fragile and required frequent replacement, they were rapidly improved and open-jet lighting soon became obsolete.

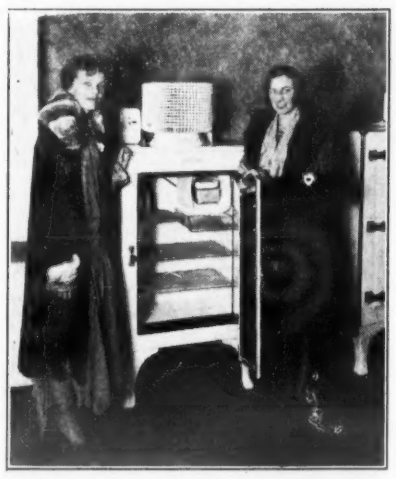
He was a pupil, at Heidelberg, of the great German chemist, Bunsen, who invented the famous Bunsen burner. Unlike many inventors, but like Edison, Welsbach amassed a large fortune through his inventions. His royalties from the Welsbach mantle have been very large and, in spite of the rivalry of electricity, many mantles are still sold throughout the world. He is also the inventor of the ferro-cerium, or "Auer metal" that is used in pocket cigar lighters.

## DAVIDSON BROS. HOLD SECOND ANNUAL REFRIGERATION SHOW

Davidson Brothers, Inc., refrigerating engineers in Miami, Fla., held their second annual Electric Refrigeration Show, December 10 to 15 in what is believed to be the first refrigerated display room in the world. Two large air conditioning units maintain a temperature of 78 degrees or less if desired regardless of outside temperature.

The concern carries a complete line of refrigerating equipment for applications ranging from the small domestic requirements to commercial jobs in cold storage plants.

## AMELIA EARHART ACCEPTS REFRIGERATOR ON BEHALF OF WELFARE INSTITUTION



**Miss Earhart** **Miss Dow**

Amelia Earhart, aviatress and social worker, recently accepted a gift of a General Electric refrigerator for Denison House, welfare institution, Boston, Mass. The gift was made by Mariam Dow, an associate of Miss Earhart in the settlement work of this institution, and was received in behalf of Denison House by Miss Earhart.

## CHILLED PLUM PUDDING MAKES APPROPRIATE CHRISTMAS DESSERT

Mince pie, pumpkin pie, fruit cake, and plum pudding once were considered the normal light ending for a heavy Christmas dinner. In the newer fashion of dining, a less weighty dessert is preferred. A fluffy pudding will leave the dinner much more successful, and can be prepared ahead of time in the refrigerator.

*Chocolate Plum Pudding*

| | |
|---|---|
| 1 level tablespoon Knox gelatine | Salt |
| ½ cup cold water | ½ cup seeded raisins |
| 1 cup milk | ¼ cup currants |
| 1 square chocolate | 2 egg whites |
| ¼ tsp. vanilla | ½ cup sugar |
| | 1/3 cup dates |
| | ¼ cup nuts |

Soak gelatine in cold water five minutes. Put milk with fruit in double boiler. When hot, add chocolate, which has been melted, mixed with a little sugar and milk to make a smooth paste, or use 3 tablespoons ground chocolate. Add soaked gelatine, sugar and salt, remove from fire, and when mixture begins to thicken add vanilla and nut meats, chopped, then fold in stiffly beaten whites of eggs. Turn into wet individual molds decorated with whole nut meats and raisins. Chill in freezing unit of refrigerator, unmold and garnish with holly. Serve with sweetened and flavored whipped cream or a currant jelly sauce.

## Miami Electric Refrigerator Co. Will Distribute G. E. Line

The Miami Electric Refrigerator Co., 39 W. Flagler St., Miami, Fla., has been formed to distribute General Electric refrigerators in Dade and Broward counties. The officers of the new company are: William G. Vey, president; A. T. Emmett, vice-president; J. W. Roll, vice-president and treasurer; George N. Bicker, secretary.

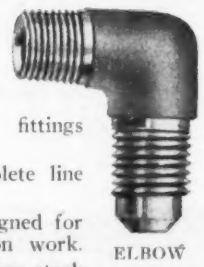
## C. E. Russell Is Named Southern Regional Mgr. by Frigidaire

C. E. Russell, formerly zone manager of he Frigidaire Corp., has been appointed southern regional manager for that company, according to R. F. Callaway, manager of branch operations at Dayton, Ohio. C. E. Quigley has been appointed zone manager operating in Atlanta and Jacksonville.

KEROTEST
FORGED BRASS VALVES
*for* Mechanical Refrigeration
Quality Shut-off and Cylinder valves in any standard designs or to your specifications.
KEROTEST MANUFACTURING CO.
2525 LIBERTY AVENUE
PITTSBURGH, PENNA.

**Mueller**
***forged*** **Refrigerator Fittings**

UNION COUPLING


ELBOW

*Four things to remember:*
1—Mueller Refrigerator fittings are FORGED.
2—An exceptionally complete line is manufactured.
3—They are specially designed for mechanical refrigeration work.
4—Immediate shipment from stock can be effected.

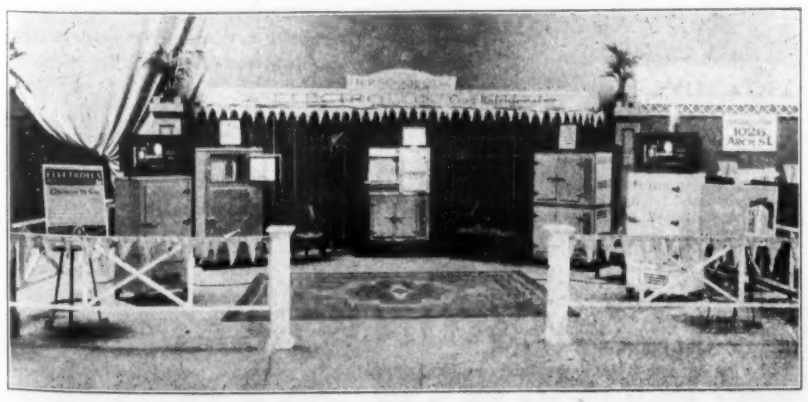
Mueller Refrigerator Valves or Fittings can be made to suit your special requirements.

UNION NUT

The name MUELLER on Refrigerator fittings is not merely a trade mark—it stands for experience, practicality and quality.

*Send us samples or blue prints for quotation*
**Mueller Brass Co.**
PORT HURON, MICH.
THREE GENERATIONS OF BRASS MAKING

## Display at Philadelphia Food Show Nets 250 Good Prospects



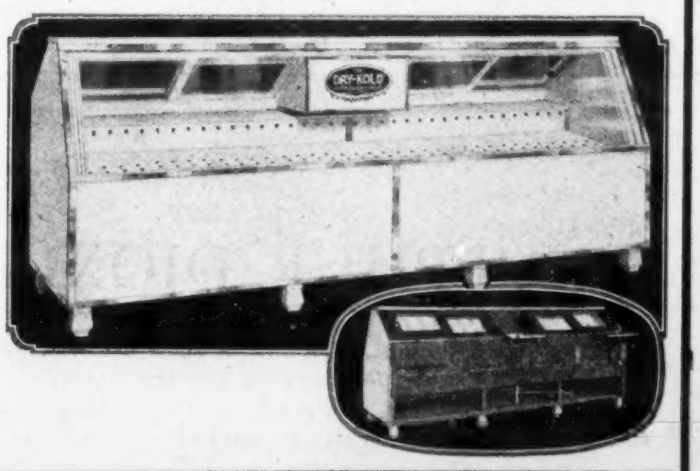
**H. P. Schade Co., Philadelphia, displayed five Electrolux machines to approximately 10,000 people in their booth at the Philadelphia Food Fair, held in Philadelphia, Oct. 29 to Nov. 10.**

**Several sales were closed during the show and 250 good prospects were listed.**

**The Latest Achievement in "Dry-Kold" Refrigerators**

**"PERFECTION"**

DISPLAY REFRIGERATOR
FOR ICE OR ELECTRIC REFRIGERATION
PORCELAIN INTERIOR AND EXTERIOR!
ACTIVE AIR CIRCULATION WITH COMPLETE EQUALIZING OF TEMPERATURE, FRONT AND REAR.
AN EXCLUSIVE DESIGN DEVELOPING THE UTMOST IN CORRECT REFRIGERATION.
EXTRA SHELF SPACE!
PERFORMANCE NOT EQUALED BY ANY OTHER! ESTABLISHES A STANDARD!
THE PRODUCT OF AN OLD ESTABLISHED MANUFACTURER OF THE HIGHEST GRADE, CORRECT REFRIGERATORS.
SEND FOR COMPLETE CATALOG.

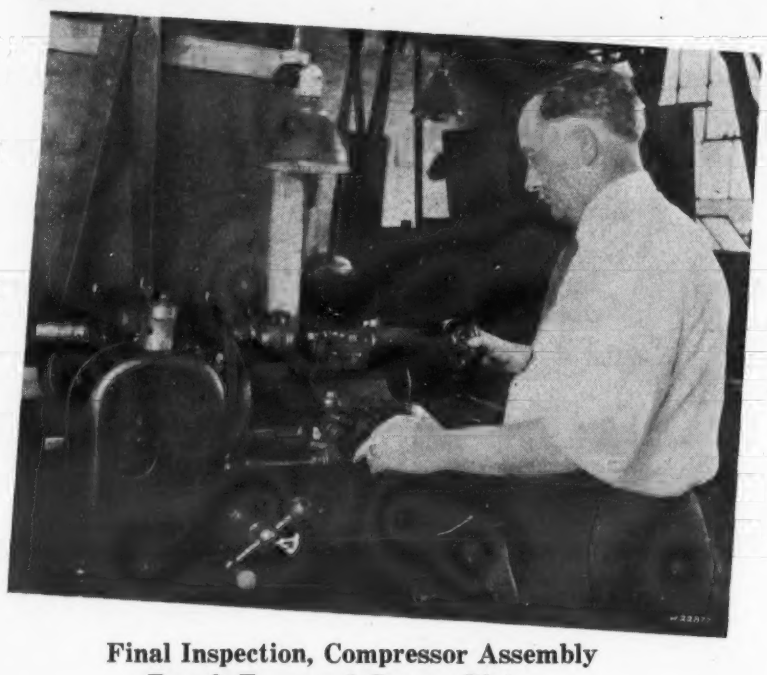


**The "Dry-Kold" Refrigerator Co.**
NILES, MICHIGAN

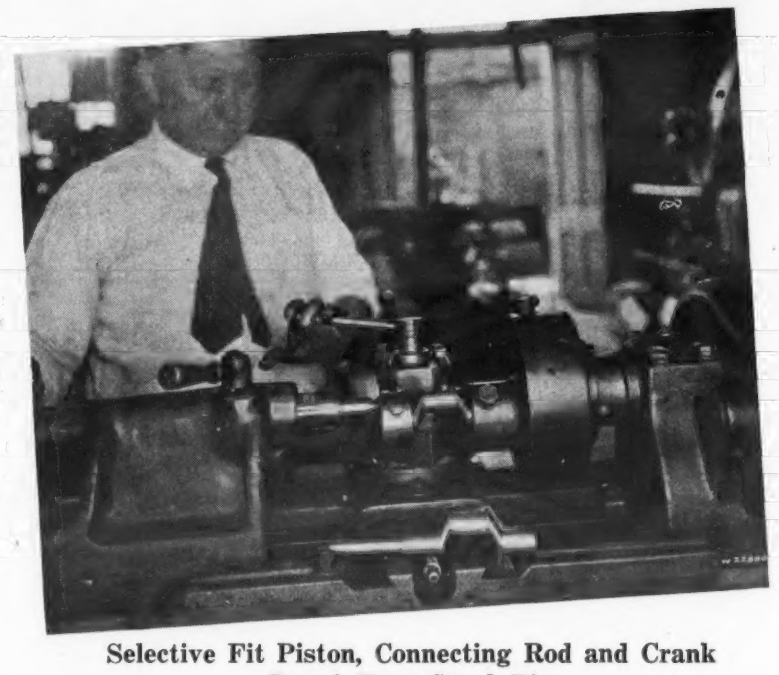
# Production Scenes in the Kelvinator Plant

Final Inspection, Compressor Assembly

Selective Fit Piston, Connecting Rod and Crank



Rough Turn and Groove Pistons



Rough Turn Crank Pin

## MOVING PICTURES A FEATURE OF 7th NATIONAL POWER SHOW

The Seventh National Exposition of Power and Mechanical Engineering was held at the Grand Central Palace in New York City from Dec. 3 to 8. A feature of the exposition this year was the showing of a number of films on industrial subjects.

"Electrical Measuring Instruments" was the title of a five reel film, with attention given to voltmeters, ammeters of the permanent magnet, movable coil and movable iron types of instruments as well as voltmeters, ammeters, watt-meters of the electro-dynamometer type, power factor, frequency meters, synchroscopes and thermo instruments.

## REFRIGERATOR TRAVELS FROM SALISBURY, N. C., TO DNEIPROSTROY, RUSSIA

THE lady of today, like her sister of long ago, is essentially practical. Just as her pioneering grandmother, making a home in a new land, carried only household necessities with her, so one woman of today, accompanying her husband to Russia, when his work called him, left her piano at home and took the practical, useful electric refrigerator.

From Dneiprostroy, Kichkas, Ukraine, U. S. S. R. (Russia) comes an interesting letter telling of their safe arrival and adding: "Our household goods shipped by freight arrived last week. They gave the Kelvinator some pretty rough handling in transit and evidently had it bottom side up part of the time, but although some damage was done, I believe I can fix it up all right, though I will need some information which I will appreciate your sending me."

Yes, the modern housewife, like her grandmother before her, is essentially practical. And many women all over the world will heartily agree that electric refrigeration is indispensable to the home.

### Servel Sales Promotion and Advertising Depts. Divided

Advertising and sales promotion activities of Servel Sales, Inc., have been divided according to H. W. Foulds, vice-president. Advertising will be under the direction of William H. Reynolds with headquarters at 51 E. 42nd St., New York, N. Y. Sales promotion activities will be in charge of A. T. Golding with headquarters at Evansville, Ind.

### W. G. Wright Appointed Servel District Manager

W. G. Wright has been appointed district manager for Servel Sales, Inc., covering the eastern part of Missouri and the southwestern part of Illinois. Mr. Wright has been in the refrigeration business for some years, most recently with Copeland Products, Inc.

### Evansville Frigidaire Distributor Gets Larger Territory

Twenty-six counties have been added to the territory of the A. F. Woods Co., Frigidaire distributors, Evansville, Ind. This makes forty-seven counties in the company's territory. The enlargement of area followed closely the incorporation of the company by A. F. Wood, H. M. Wood, and O. J. Wood.

**Coming Jan. 2—The Annual Catalogue and Directory Number of Electric Refrigeration News. Circulation 10,000 Copies.**


McCORD BUILT CONDENSERS

Type "C" Spiral Fin Coil
McCORD CONDENSER
with Seamless Headers
The continuous Spiral fin is a McCord feature which combines compactness with great operating efficiency. Only seamless, bright annealed tubing is used with a minimum of joints, reducing the hazards of leaks.
Type "A" Double Row Spiral Fin
McCORD CONDENSER
Adapted to the larger refrigerating units used commercially and for apartment house installations. This condenser is made up of seamless, bright annealed tubing with continuous corrugated spiral fin that has made McCord condensers leaders in the field.
Type "A" Double Row Spiral Fin
McCORD CONDENSER
with Receiver
Another compact and highly efficient condenser equipped with receiver, made from seamless copper tubing, the ends being spun closed—eliminating welded joints and avoiding the possibility of scale.

McCORD RADIATOR & MFG. CO.
DETROIT, MICH.

The leading refrigerator manufacturers are buying
BOSLEY'S
"Ice Saver" Gasket
for it is the best uniform quality insulation
*Write us*
The D. W. Bosley Company
1901 Carroll Ave. Chicago, Ill.

THESCO DISPLAY FIXTURES

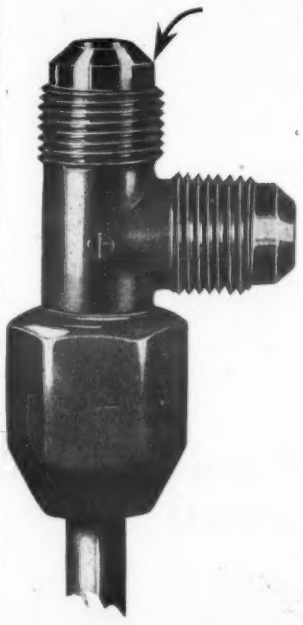
Have been profit makers for 58 years.
Write for Catalog E-92 and full information.
THE HOME OF THESCO PRODUCTS
THE C. SCHMIDT CO.
Est. 1870 Inc. 1907
John and Livingston Sts.
Cincinnati, Ohio

E. T. L. Service for Domestic and Commercial Electric Refrigeration
Testing and experimental laboratory service for Manufacturer, Distributor, Central Station
Test data exclusive property of client
ELECTRICAL TESTING LABORATORIES
80th Street and East End Avenue, NEW YORK CITY, N. Y.

AUTOMATIC ELECTRIC CONTROLS
NON-DETERIORATING MERCURY SWITCHES
*Simple — Dependable* ABSOLUTE ELKHART
CON-TAC-TOR
*Accurate — Safe* CORPORATION INDIANA

TRADE
EXTRA DRY ESOTOO
MARK
THE PUREST
SULPHUR DIOXIDE
Analysis Guaranteed
We have an agent, with our product in stock, near you
Wire us where we can serve you
VIRGINIA SMELTING CO., West Norfolk, Va.
F. A. Eustis, Secretary 131 State St., BOSTON 2 Rector St., NEW YORK

Here's Where Quality Counts!



**THERE is a difference in the quality of tube fittings; and perhaps the most important point is the quality of the seating surfaces. Strength and accuracy of threads are important, too, in fittings which must meet the exacting requirements of the iceless refrigeration industry.**

**Commonwealth Refrigeration fittings are made exclusively from brass forgings and rod. That means compact grain structure and greater tensile strength. Each part is individually reseated, blown clean, and wrapped and handled separately in stock and transit.**

**The result is a quality fitting which insures an unleakable connection—and one that will remain that way for years to come.**

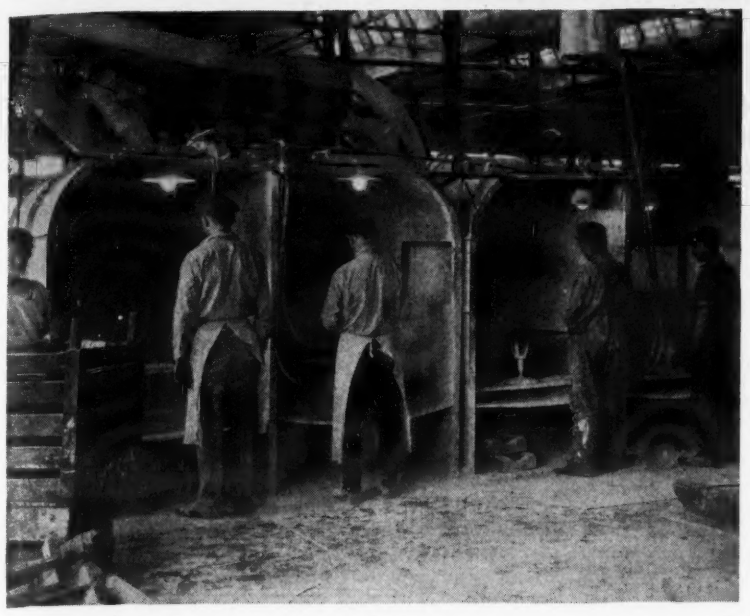
**For seventeen years the Commonwealth Brass Corporation has specialized in the manufacture of quality brass tube fittings. A complete line of *standard* fittings is always in stock for immediate shipment.**

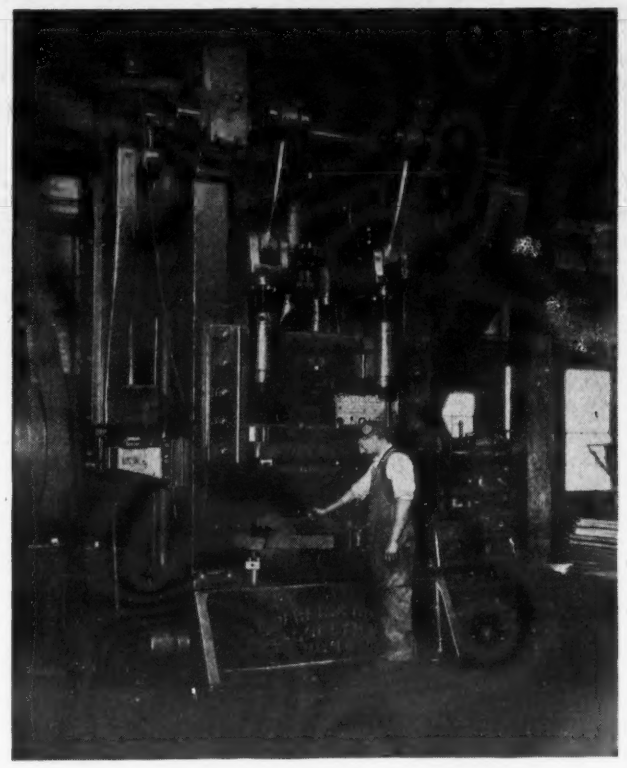
**Send a sample or blueprint for quotations on parts of a special nature. Catalogue No. R-30, showing our complete line of standard fittings, will be mailed on request.**

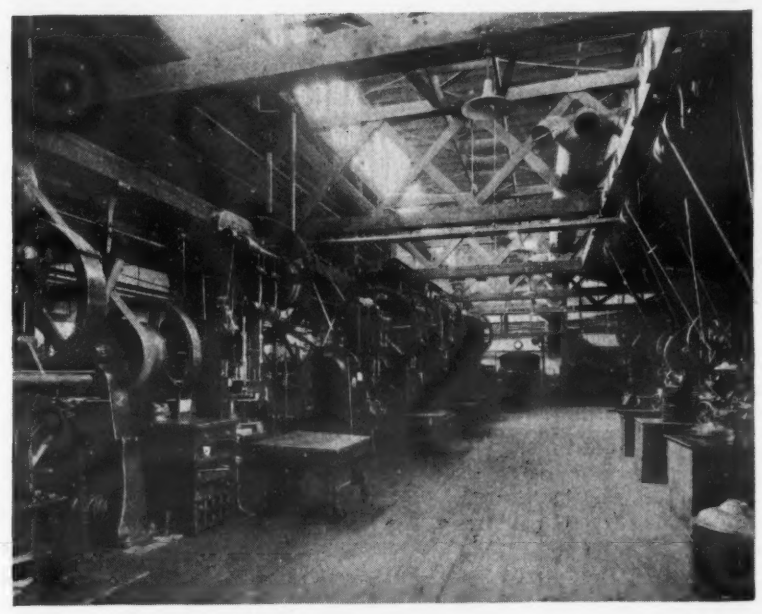
Commonwealth Brass Corp.
5781-5835 Commonwealth Ave.
Detroit

COMMONWEALTH BRASS FITTINGS

# Scenes in the Crysteel Porcelain Enameling Plant of the Benjamin Electric Mfg. Co.







**Above—left to right—pieces being sprayed with enamel preparatory to burning on process. Center—large machine for stamping and forming metal shapes. Right—sprayed parts on trucks ready to be placed in the oil heated furnaces.**

**Below—left—each piece is given a thorough pickling to remove all grease and foreign matter. Right—rows of machines for stamping parts ranging from an ice cube tray cover to a one-piece washing machine tub.**

## RAW MATERIALS FOR PORCELAIN FROM ALL PARTS OF THE WORLD

### South America, England, New Foundland, Greenland Are Among Sources

ONE of the most extensive plants in the country for the manufacture of porcelain enameled steel shapes for refrigerators is that of the Crysteel Works of the Benjamin Electric Mfg. Co., located at Desplaines, Illinois.

For many years Benjamin has been making Crysteel porcelain enameled products. These include reflectors for industrial lighting equipment, table tops for kitchen tables, kitchen cabinets and washing machines; tubs for the latter; a wide and varied assortment of parts for stoves and ranges, photographic trays and numerous and sundry items for the chemical industries; outdoor signs, railroad targets, in fact for almost any conceivable article of merchandise using porcelain enameled parts to advantage.

In the refrigerator field Benjamin produces seamless interiors and exterior sheets, porcelain enameled baffles, drip pans, front shields and ice-tray fronts.

At the Crysteel Works, huge presses stamp out anything from the smallest sized ice-tray cover to the largest capacity seamless, one-piece washing machine tub. After stamping and forming, each piece is given a thorough pickling to remove grease and other foreign matter; then washed in brine and clean running water to remove all trace of the pickling or acid solution. The shapes are dried in a dust-tight room, nested in crates or stacked on lift trucks and made ready for enameling.

The corners of the earth are searched for raw material. Quartz, from Illinois; borax, from California; feldspar, from Connecticut; soda ash, from Michigan, and fluorspar from Kentucky; Salt petre from South America; antimony and tin oxide from England; Cryolite from Greenland; cobalt oxide from Canada; manganese from New Foundland, and back to Kentucky for ball clay.

Mixed by hand to closely watched formulas, moulded and kneaded, the mix is finally smelted in what is practically a large puddling furnace. The molten mix is eventually discharged through tuyers in the side of the furnace into vats of cold water which shatters the molten glass into fragments, called "frit".

The frit is placed in steel cylinders, lined with porcelain tile and partially filled with flint pebbles. A small quantity of water is added. After hours of grinding, the frit is pulverized and the whole mix becomes a smooth flawless cream. This is passed through fine bolting screens to further guard against any possible inconsistency in the smoothness of the fluid enamel.

The clean steel shapes are usually dipped for the first coat and then fired in oil-heated furnaces. Here the temperature is raised to such a point that the metal becomes white hot, the pores of the metal open, the enamel or vitreous glass runs into and around the tiny interstices in the metal and practically fuse with the metal surface. Micrographs of a cross-section of the cooled metal base with its enamel coat actually show tiny spores of the metal piercing the enamel covering.

Subsequent coatings of enamel are sprayed on, and then the piece is again burned on in the oil-heated furnaces, resulting in a smooth, practically impervious covering.

Every step in the process of porcelain enameling is carried out under the most modern conditions. The buildings are spacious, with lofty ceilings, and well lighted both by day and by night, for an enameling plant runs continuously. A ventilating system changes the air throughout the entire plant every ten minutes, keeping the atmosphere practically dust free.

Engineers are continually working on the problems of adapting procelain enameling to the varied products of manufacturers, throughout the country. With the public ideas of sanitation, demanding the maximum degree of protection of health, porcelain enameling is being applied to products which a few years ago gave no promise of the use of such an art.

## Des Moines Frigidaire Branch to Have New Warehouse

A new warehouse is to be constructed by the Des Moines branch of the Frigidaire Corp., according to J. V. Tedford, manager. The building will be erected at West Fourteenth and Walnut streets. It will be of brick and steel construction, 80 by 120 feet, and will accommodate $200,000 worth of stock. The building will have one story and basement and will have office space as well as warehouse accommodation. It is expected to be completed about April 1.

## SOUTHERN CALIFORNIA EDISON TO SELL G. E.

The Southern California Edison Company are now merchandising General Electric refrigerators throughout their entire organization consisting of thirty-two divisional headquarters and their branches. The decision to sell General Electric refrigerators means a considerable increased volume to The Geo. Belsey Co., General Electric distributors in Southern California. The Southern California Edison Co. organization extends from the San Joaquin valley in Central California to points as far south as Orange County and east to San Bernardino and Riverside counties as well as Ventura and Santa Barbara counties north on the coast. With this added selling endeavor in the field coupled with the present dealer organization of the Belsey Co. the two and one-half increase in sales volume that General Electric dealers are striving for in 1929 is expected to materialize.

## Installs 20 Apartment Units in One Day

N. K. Ovalle, distributor of General Electric refrigerators at Harrisburg, Penn., recently made a speedy installation of 20 units in the Parkway Apartments in Harrisburg. The refrigerators were unloaded from the freight at 8:00 a. m. and at 5:00 p. m. on the same day they had all been installed and were operating.

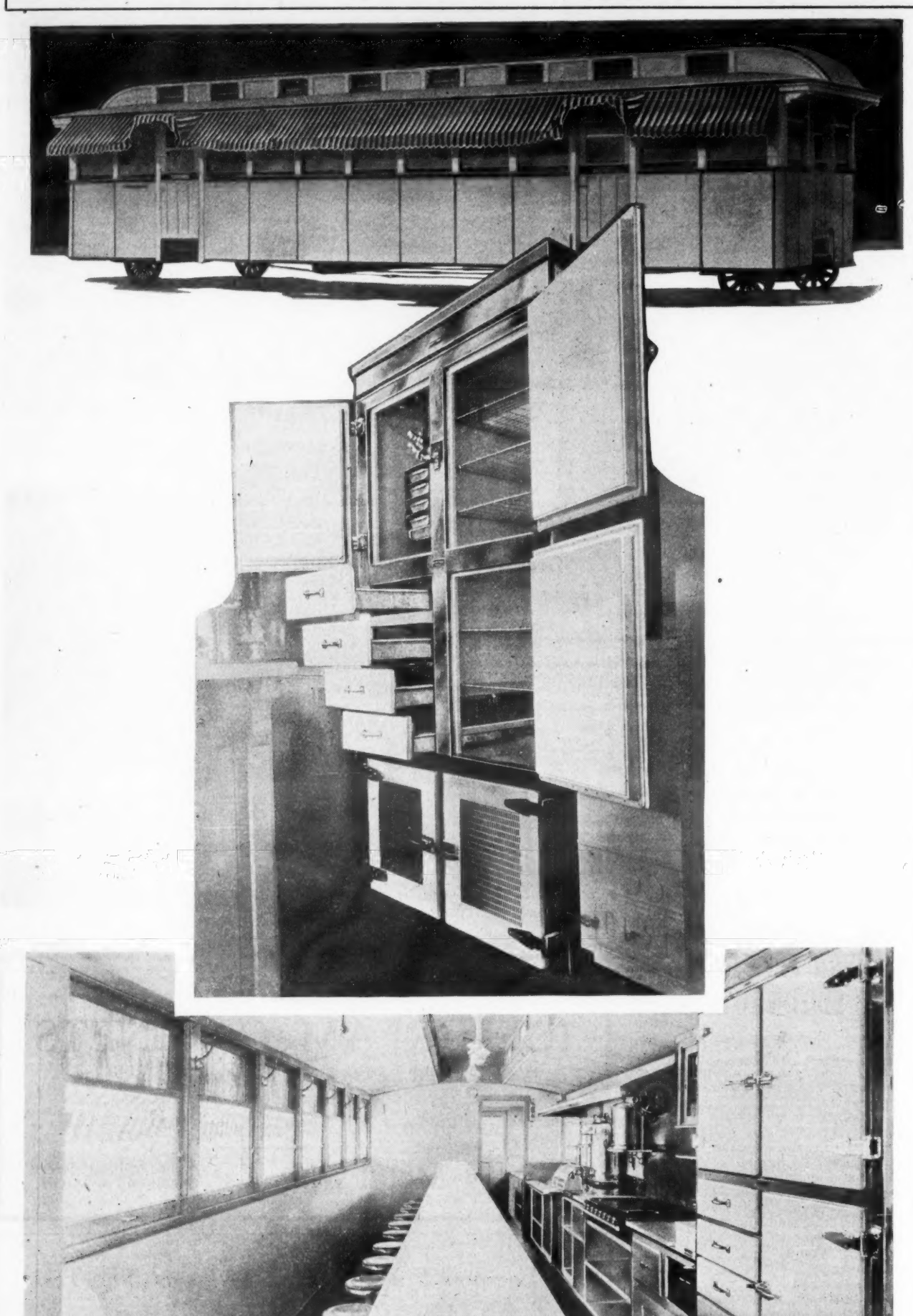
*Manufacturers of*
ICE CREAM CABINETS
We will build Ice Cream Cabinets to your design ready for installation of compressors
REPLACEMENT PARTS FURNISHED
Motors Metal Mfg. Co. 5936 Milford Street DETROIT :: MICH.

*A Lacquer Finish That Has Stood The Test*
M & W REFRIGERATOR LACQUER ENAMELS
A Quality Reputation on these products has been established through actual large quantity production on Cabinets widely distributed throughout the world.
Another complete M & W Finish including either Lacquer or Oil Primer followed by M & W Lacquer Enamel in White or Colors.
We invite your correspondence regarding your particular problems.
MAAS & WALDSTEIN CO.
EXECUTIVE OFFICES AND PLANT, 438 RIVERSIDE AVENUE, NEWARK, N. J.
CHICAGO OFFICE AND WAREHOUSE
11 Washington5 Blvd. West
LOS ANGELES OFFICE AND WAREHOUSE
1212 Venice Blvd., Los Angeles, Cal.

KULAIR COMMERCIAL CONDENSING UNITS
*For Use With Any Practical Cooling Unit*
Low, Medium or High Speed
Multiple or Single Unit Hookup
*Sulphur Dioxide or Methyl Chloride*
A sensible policy product and price
Awaits your inquiry
Write for it
KULAIR DIVISION
FRANKLIN AIR COMPRESSOR CORPORATION
NORRISTOWN, PA.

No. 3000 Air Cooled 9942 BTU per
Smaller Sizes to ¼ Horse Power.

# Exit the Horse Drawn Lunch Cart — Enter the Electrically-Refrigerated "Efficiency Diner"



BACK in the days of America's youth—soldiers building roads of iron across a continent—cowboys herding long-horned cattle over the plains—all were away from home—all were demanding to be fed and quickly. Wherever men were away from home there came into being the "scouse shack," the "chow car" and the "grub wagon." In our own day, we can still remember the horse-drawn lunch cart. None of these, however, could survive the modern demands of sanitation in food preparation, so for some time this method of service was in disrepute.

There was much to be said for these old wagons however; many could be fed quickly at a low overhead and consequently at a low charge to the customer. This appealed to the owner and the public. The old idea of a "kitchen on wheels" has been brought up to date in keeping with the best methods of modern living, yet keeping intact the economy and convenience of that earlier day.

The "Efficiency Diners" built by Ward & Dickenson at Silver Creek, New York, are now used from coast to coast, and from Canada to the far south. The popularity of their appeal is based upon that same quality of convenience found so practical in their prototype of an earlier day.

Every car shipped from the factory is completely equipped and ready for business when it is set on location and the grocery boy has made his delivery. They have standardized on Kelvinator equipment for refrigeration service in these diners and Kelvinator Corporation yearly receives an order from this company which runs into several thousands of dollars.

## Opens Service Shop in Des Moines

S. W. Johnson, Des Moines, Iowa, refrigerator service man, has opened the first electric refrigerator repair shop in that city at 413 Locust street. Johnson repairs and installs all makes of electric refrigerators.

# WILLIAMS OIL-O-MATIC SHOWS NET INCOME OF $450,057 IN STATEMENT

Earnings of the Williams Oil-O-Matic Heating Corp., Bloomington, Ill., manufacturers of Williams Oil-O-Matic oil burners and Ice-O-Matic electric refrigerators, for the fiscal year ended Oct. 31, 1928, showed a net income of $450,057 as compared with a loss of $51,327 on Oct. 31, 1927. The earnings for the year equalled $1.15 a share on 390,000 shares of no par value common stock. Practically all of these earnings were returned in the last quarter.

Current assets of the company at the end of the fiscal year were $1,853,177, including cash items of $831,096, against current liabilities of $224,642.

### ASSETS

| | | |
|---|---|---|
| Current | | |
| Cash on hand and deposit | | $ 281,095.67 |
| U. S. Fourth Liberty bonds | | 50,000.00 |
| Collateral demand loans | | 500,000.00 |
| Notes, trade acceptances and accounts receivable less reserve for doubtful accounts, discounts, etc. | | 356,494.46 |
| Merchandise inventory (on basis of the lower of cost or market value) | | 665,587.00 |
| Total current assets | | $1,853,177.13 |
| Permanent assets—factory properties | | |
| Lands and improvements | $ 45,531.03 | |
| Buildings and equipment | 314,586.42 | |
| Machinery and equipment | 299,410.85 | |
| Total | $659,528.30 | |
| Less Dep'n. reserves | 120,914.31 | |
| Total factory properties | | $ 538,613.99 |
| Downtown Properties | | |
| Lands and improvements | $ 30,000.00 | |
| Buildings and equipment | 288,603.81 | |
| Total | $318,603.81 | |
| Less Dep'n. reserves | 62,067.01 | |
| Total downtown properties | | 256,536.80 |
| Total permanent assets | | $ 795,150.79 |
| Other assets | | |
| Miscellaneous accounts receivable | | $ 25,166.67 |
| Salesmen and employe accounts—Less reserve | | 70,619.58 |
| Cash surrender value—life insurance | | 15,825.75 |
| Total other assets | | $ 111,612.00 |
| Patents | | 1.00 |
| Deferred—Prepaid expenses and supplies | | 99,405.87 |
| Total assets | | $2,859,346.79 |

### LIABILITIES

| | | |
|---|---|---|
| Current | | |
| Accounts payable—Trade | $142,339.21 | |
| Pay rolls accrued | 6,585.49 | |
| Sundry accruals | 6,555.68 | |
| Domestic taxes accrued | 7,889.91 | |
| Federal income taxes accrued | 61,271.53 | |
| Total current liabilities | | $ 224,641.82 |
| Replacement expense reserve | | 10,000.00 |
| Total liabilities and reserves | | $ 234,641.82 |
| Net Worth | | |
| Capital Stock—Common, non par value. Authorized 450,000 shares. Unissued, reserved, under option contract, 60,000 shares. Outstanding at declared value of $5.00 per share, 390,000 shares | | 1,950,000.00 |
| Surplus 11-1-27 | $222,778.66 | |
| Additions—Sundry adjustments, $5,007.07. Deductions, additional federal income taxes for prior years and interest thereon, $3,137.57. Net additions | 1,869.50 | |
| Adjusted balance | $224,648.16 | |
| Gain for year, $511,328.34. Less: Reserved for federal income taxes, $61,271.53. Net gain, after taxes, $450,056.81. | | |
| Surplus 10-31-28 | | 674,704.97 |
| Total Capital and Surplus | | 2,624,704.97 |
| Total Liabilities and Net Worth | | $2,859,346.79 |
| Contingent Liability on B-L Sight Drafts and Trade Acceptances | | $201,963.30 |

### INCOME STATEMENT

For Year Ended October 31st, 1928

| | | |
|---|---|---|
| Sales, burners, parts and accessories | | $2,970,842.58 |
| Less returned sales and allowances | | 408,563.95 |
| Net sales | | $2,562,278.63 |
| Costs of sales | | 1,225,132.87 |
| Gross profit on sales | | $1,337,145.76 |
| Selling expenses | | 793,885.59 |
| Operating profit | | $543,260.17 |
| Other income | | 34,078.80 |
| Total | | $577,338.97 |
| Other charges | | 66,010.63 |
| Net profit | | $511,328.34 |
| Federal income taxes | | 61,271.53 |
| Net available profit | | $450,056.81 |

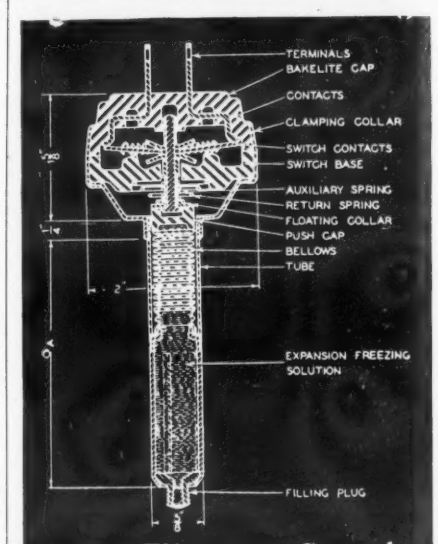

FLINTLOCK CONDENSERS

*Efficient — Economical Compact*

**Greater Efficiency at Less Cost**

WRITE FOR OUR BOOKLET

FLINTLOCK CORPORATION
4461 W. Jefferson Ave.
DETROIT, - - MICH.




Ranco Thermostat Controls have many points of superiority for Household Refrigerators, Ice Cream Cabinets, Water Coolers, Etc.
*Write for information*
THE AUTOMATIC RECLOSING CIRCUIT BREAKER COMPANY
COLUMBUS, OHIO, U. S. A

Small Space Required for the FRICK Refrigerating Unit

As builders of commercial refrigerating equipment for nearly fifty years, we have incorporated in our designs the features of compactness, pleasing appearance, economy and reliability, that insure success.

*Distributors for Available Territory Wanted*

Frick Company
WAYNESBORO, PA., U.S.A.
ICE MACHINERY SUPERIOR SINCE 1882

SULPHUR DIOXIDE

ANHYDROUS SULPHUR DIOXIDE

Universally used in the production and servicing of refrigerating machines.
Prepared for direct charging, with absolute protection afforded by complete laboratory analysis of each cylinder, large or small.
Exceptional dryness maintained as an additional safety factor
Ten sizes of cylinders from 2 lb. to 150 lb. capacity.

$SO_2$

ANSUL CHEMICAL COMPANY
MARINETTE, WIS.

*Canadian Distributor*
GRASSELLI CHEMICAL CO. Ltd
Toronto—Montreal

*Western Subsidiary*
ANSUL CHEMICAL CO. of Calif.
Modesto, Calif.

# Production Tools Directory

**Including the names of companies manufacturing tools and equipment used in the production, installation and servicing of electric and gas refrigerators. This listing was compiled from information supplied by the purchasing departments of leading electric refrigeration manufacturers. Companies whose listing has been omitted or is incomplete are requested to send full information to the Editor, to be included in the revised directory in the Annual Catalogue and Directory Number, January 2.**

ABBOTT BALL CO.
Hartford, Conn.
Mfrs. of burnishing equipment.

ACME-DETROIT SAW CORP.
528 E. Fort St., Detroit, Mich.
Mfrs. of saw sharpeners and saws.

ACME DIAMOND TOOL CO.
172 Broadway, New York, N. Y.
Mfrs. of diamond tools.

ACME INDUSTRIAL CO.
415 N. Carpenter St., Chicago, Ill.
Mfrs. of air regulators.

T. R. ALMEND MFG. CO.
Ashburnham, Mass.
Mfrs. of micrometers.

AMERICAN EMERY WHEEL WORKS
Providence, R. I.
Mfrs. of grinding wheels, abrasives.

ANCHOR BRASS FOUNDRIES
1431 Church St., Detroit, Mich.
Mfrs. of copper hammers.

ARMSTRONG BROTHERS TOOL CO.
373 N. Franscisco St., Chicago, Ill.
Mfrs. of small factory tools.

AVEY DRILLING MACHINE CO.
Cincinnati, Ohio
Mfrs. of drill presses.

BAKER BROS.
Toledo, Ohio
Mfrs. of drill presses.

BATAVIA CLAMP CO., INC.
2-3 Center St., Batavia, N. Y.
Mfrs. of clamps.

CHARLES H. BESLEY & CO.
118 Clinton St., Chicago, Ill.
Mfrs. of taps, abrasives.

BINKS SPRAY EQUIPMENT CO.
3114-16 Carroll Ave., Chicago, Ill.
Mfrs. of paint spraying equipment.

BLACK & DECKER CO.
Towson, Md.
Mfrs. of electric grinders, screw drivers, finishers, drills, soldering irons, bolt setters, stud drivers.

BLACK BROTHERS CO., INC.
900 Fourth St., Mendota, Ill.
Mfrs. of clamps, hand screws.

G. S. BLAKESLEE & CO.
19th and 52nd Aves., Chicago, Ill.
Mfrs. of industrial washing, drying equipment.

E. W. BLISS CO.
Brooklyn, N. Y.
Mfrs. of punch presses, shears.

BRIDGEPORT SAFETY EMERY WHEEL CO.
1295 W. Broad St., Bridgeport, Conn.
Mfrs. of buffing lathes.

BRISTOL CO.
Waterbury, Conn.
Mfrs. of testing instruments.

BROWN HOISTING MACHINERY CO.
4403 St. Clair Ave., Cleveland, Ohio
Mfrs. of hoists.

BROWN INSTRUMENT CO.
Philadelphia, Pa.
Mfrs. of testing instruments.

BROWN & SHARPE MFG. CO.
Providence, R. I.
Mfrs. of precision tools, automatic screw machines.

BUCKEYE TWIST DRILL CO.
Alliance, Ohio
Mfrs. of drills, reamers, cutters.

BUHL SONS CO.
Adair St., Detroit, Mich.
Mfrs. of acid swabs, metal working tools.

BUHL STAMPING CO.
2730 Scotten Ave., Detroit, Mich.
Mfrs. of metal stampings, flaring tools, punches.

BURY COMPRESSOR CO.
1100 W. 17th St., Erie, Pa.
Mfrs. of air compressors.

CARBORUNDUM CO.
Niagara Falls, N. Y.
Mfrs. of emery wheels.

CENTURY SAW & TOOL WORKS
1567 Church St., Detroit, Mich.
Mfrs. of files, tools, saws.

CHICAGO PNEUMATIC TOOL CO.
Detroit, Mich.
Mfrs. of electric grinders, screw drivers, finishers, drills, soldering irons, bolt setters, stud drivers.

CHICAGO FLEXIBLE SHAFT CO.
1150 S. Central Ave., Chicago, Ill.
Mfrs. of gas furnaces.

CINCINNATI MILLING MACHINE CO.
Cincinnati, Ohio
Mfrs. of milling machines.

CLEVELAND TRAMRAIL CO.
Cleveland, Ohio
Mfrs. of conveyors, escalators.

COMMERCIAL STEEL TESTING CORP.
6535 Livernois Ave., Detroit, Mich.
Carbonizing cyaniding, tool hardening, annealing, heat treating.

CONN VALLEY MFG. CO.
200 Main St., Centerbrook, Conn.
Mfrs. of expansion bits.

CONSOLIDATED MACHINE TOOL CORP.
Erie, Pa.
Mfrs. of small tools.

CONSOLIDATED STEEL STRAPPING CO.
2847 Grand River, Detroit, Mich.
Mfrs. of box strapping (steel),

CONTINENTAL CAN CO.
100 E. 42nd St., New York, N. Y.
Mfrs. of oil cans for shipping service oil.

CRAMP MFG. CO.
2850 Fulton St., Chicago, Ill.
Mfrs. of indicating micrometers.

CRAWFORD OVEN CO.
340 W. Water St., New Haven, Conn.
Mfrs. of enameling ovens, spray booths.

CUSHMAN CHUCK CO.
902 Windsor St., Hartford, Conn.
Mfrs. of centering chucks.

CYCLOPS STEEL CO.
Titusville, Pa.
Mfrs. of industrial diamonds, holders, die blocks.

DETROIT EDGE TOOL WORKS
3000 E. Woodbridge St., Detroit, Mich.
Mfrs. of blades, tools.

DETROIT ENAMELING WORKS
5635 16th St., Detroit, Mich.
Painting, enameling.

DETROIT HOIST & MACHINE CO.
8201 Marrow, Detroit, Mich.
Mfrs. of electric hoists.

DETROIT RETINNING & REFINISHING CO.
534 E. Fort St., Detroit, Mich.
Retinning, refinishing.

DE VILBISS CO.
224 Phillips Ave., Cleveland, Ohio
Mfrs. of paint and lacquer sprays.

DIAMOND DRILL CARBON CO.
57 Park Row, New York, N. Y.
Mfrs. of carbon block industrial diamonds.

EBERHARD MFG. CO.
2800 Tennyson Rd., Cleveland, Ohio
Mfrs. of clamps and tools.

ELECTRICAL TESTING LABORATORIES
80th & East End Ave., New York, N. Y.
John W. Lieb, pres.; C. H. Sharp, Ph. D., vice-pres., tech. director; Preston S. Millar, gen. mgr.; F. Malcolm Farmer, M. E., chief engr.
*Trade name*—E. T. L.
Test reports and data on overall performance or on electrical, mechanical, or chemical equipment.

ERIE FORGE CO.
Erie, Pa.
Mfrs. of die blocks.

ESPIN MACHINE WORKS
Philadelphia, Pa.
Mfrs. of milling machines.

EUREKA PNEUMATIC SPRAY CO.
Richmond Hill, L. I., New York
Mfrs. of paint spraying apparatus.

FEDERAL MACHINE & WELDER
Dana Ave., Warren, Ohio
Mfrs. of welding equipment.

FERRACUTE MACHINE CO.
Bridgeport, Conn.
Mfrs. of punch presses, shears.

FERRO ENAMEL SUPPLY CO.
2100 Keith Bldg., Cleveland, Ohio
R. A. Weaver, pres.; H. E. Elright, vice-pres.; H. L. Brooks, treas.
Mfrs. of porcelain enameling equipment.

FISHER GOVERNOR CO., INC.
Marshalltown, Iowa
Mfrs. of air regulators.

FOXBORO CO., INC.
Foxboro, Mass.
Mfrs. of recording equipment.

GARDNER MACHINE CO.
Thompson St., Beloit, Wis.
Grinders of crank shafts, eccentrics.

GARDENER TAP & DIE CO.
Marion, Ohio
Mfrs. of taps, dies.

GENERAL CHROMIUM CO.
3220 Bellevue, Detroit, Mich.
Chromium platers.

GEOMETRIC TOOL CO.
New Haven, Conn.
Mfrs. of taps, die heads, threading machines.

GIBB WELDER
Bay City, Mich.
Spot and seam welding.

GIDDINGS & LEWIS MACHINE TOOL CO.
Fond du Lac, Wis.
Mfrs. of factory machinery, fixtures.

GISHOLT MACHINE CO.
Madison, Wis.
Mfrs. of lathes, screw machines, air chucks.

GOODELL PRATT CO.
Greenfield, Mass.
Mfrs. of precision tools, heads.

GRAND RAPIDS BLOW PIPE CO.
Grand Rapids, Mich.
Mfrs. of enameling ovens, spray booths.

GREENFIELD TAP & DIE CORP.
Greenfield, Mass.
Mfrs. of taps, dies.

HABERKORN & WOOD
2208 W. Fort St., Detroit, Mich.
Mfrs. of machine tools, air chucks, fixtures.

HENDEY MACHINE CO.
Torrington, Conn.
Mfrs. of lathes, screw and milling machines.

FRANK HANSON MACHINE CO.
25 E. Atwater St., Detroit, Mich.
Mfrs. of tools, dies and experimental machine work.

HANSON & VAN WINKLE CO.
Chestnut & Van Buren Sts., Newark, N. J.
Mfrs. of plating and polishing equipment, platers of anodes.

HANSON & WHITNEY MACHINE CO.
Hartford, Conn.
Mfrs. of taps, dies, reamers, gauges, keys.

JOS. W. HAYS CORP.
Michigan City, Ind.
Mfrs. of testing instruments.

HENRY & WRIGHT MACHINE CO.
Hartford, Mass.
Mfrs. of drill presses.

HOLCOMB STEEL CO.
Syracuse, N. Y.
Mfrs. of die blocks.

HUFFMAN MFG. CO.
Dayton, Ohio
Mfrs. of gas furnaces.

HUTTO ENGINEERING CO.
515 Lycaste, Detroit, Mich.
Mfrs. of cylinder grinding machines.

IMPERIAL BRASS CO.
1200 W. Harrison St., Chicago, Ill.

Mfrs. of tube cutters, flaring tools, welding apparatus.

INDEPENDENT PNEUMATIC CO.
Aurora, Ill.
Mfrs. of electric pneumatic tools.

INGERSOLL MACHINE CO.
Rockford, Ill.
Mfrs. of milling machines.

INGERSOLL RAND CO.
11 Broadway, New York, N. Y.
Mfrs. of air compressors.

JEFFERY MFG. CO.
959 N. 4th St., Columbus, Ohio
Mfrs. of conveyors, handling equipment.

KROPP FORGE CO.
5300 Roosevelt Rd., Chicago, Ill.
Mfrs. of die blocks.

LA BLOND MACHINE TOOL CO.
Cincinnati, Ohio
Mfrs. of lathes, screw and milling machines.

LANDIS TOOL CO.
Waynesboro, Pa.
Mfrs. of cam cutting, grinding attachments.

LELAND & GIFFORD CO.
Worcester, Mass.
Mfrs. of machine tools, tapping machines, drill presses.

LINCOLN ELECTRIC CO.
Cleveland, Ohio
Mfrs. of motors, electric arc welders.

LINK BELT CO.
Chicago, Ill.
Mfrs. of conveyors, escalators.

W. G. LOVEDAY CO.
Salem, Mass.
*Trade name*—CLEARSITE.
Mfrs. of metallic thermometers.

LOVEJOY TOOL CO., INC.
Springfield, Vt.
Mfrs. of small tools, specials.

LOWERATOR MFG. CO.
112 Pearl St., Brooklyn, N. Y.
Mfrs. of material handling equipment.

LUERS, INC.
2421 Colerain Ave., Cincinnati, Ohio
Mfrs. of cutting tools.

McCROSKY TOOL CORP.
1345 Main St., Meadsville, Pa.
Mfrs. of chucks.

McMULLEN TOOL & SUPPLY CO.
37 E. Woodbridge St., Detroit, Mich.
Mfrs. of reamers, milling cutters.

MANUFACTURERS EQUIPMENT CO.
5704 West Fillmore St., Chicago, Ill.
Mfrs. of collapsible taps, air chucks.

MATTATUCK MFG. CO.
Waterbury, Conn.
Mfrs. of casters, glides.

MECHANICAL HANDLING SYSTEMS, INC.
3454 Denton Ave., Detroit, Mich.
Mfrs. of monorails, monorail hoists.

MELLISER-HAYWARD CO.
680 Tenth Ave., New York, N. Y.
Mfrs. of spray booths, paint equipment.

MICHIGAN TOOL CO.
147 Jos. Campau, Detroit, Mich.
Mfrs. of tools, dies, milling cutters, reamers.

MIDWEST TOOL & MFG. CO.
2360 W. Jefferson, Detroit, Mich.
Mfrs. of reamers, boring tools, light tools.

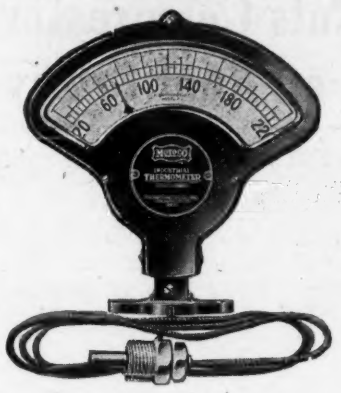
MILLER FALLS CO.
Miller Falls, Mass.
Mfrs. of sill borers, electric drills, factory tools.

MITCHELL PATTERN WKS.
2725 Newark, Detroit, Mich.
Mfrs. of wood patterns for forgings.

MONARCH MACHINE TOOL CO.
Sydney, Ohio
Mfrs. of lathes, screw machines.

D. E. MORAND MACHINERY CO.
6505 Grand River Ave., Detroit, Mich.
Mfrs. of lathes, punches, shears, rolls, reamers, belts, heavy machinery.

MOTO METER CO., INC.
Wilbur Ave., Long Island City, N. Y.




Mfrs. of temperature recording instruments.

MOTOR TOOL SPECIALTY CO.
4849 John R. St., Detroit, Mich.
Mfrs. of wheel pullers, socket wrenches, valve lifters, vacuum grip pliers, punches, end wrenches.

NATIONAL BROACH CO.
Dayton, Ohio
Mfrs. of grinding wheels, small tools.

NIAGARA MACHINE & TOOL CO.
Buffalo, N. Y.
Mfrs. of punch presses, shears.

NORTON CO.
Barbers Crossing, Worcester, Mass.
Grinders of crank shafts, eccentrics.

OHIO PIPE BENDING & MACHINE Co.
Cleveland, Ohio
Mfrs. of copper coil bending machinery.

OSBORN MFG. CO.
5401 Hamilton Ave., Cleveland, Ohio
Mfrs. of cleaning brushes.

OXWELD ACETYLENE CO.
Division of Union Carbide & Carbon Corp.,
30 E. 42nd St., New York, N. Y.
Acetylene welding.

PALMER-BEE CO.
Westminster and G. T. R. R., Detroit, Mich.
Mfrs. of conveyors, escalators.

PARKER RUST PROOF CO.
2177 E. Milwaukee Ave., Detroit, Mich.
Mfrs. of rust proofing equipment.

PECK, STOW & WILCOX CO.
Southington, Conn.
Mfrs. of metal cutting machinery, small tools, punch presses, shears.

PITTSBURGH GRINDING WHEEL CO.
Rochester, Pa.
Mfrs. of abrasive wheels, safety devices, swing-frame grinding machines.

PRATT & WHITNEY CO.
Hartford, Conn.
Mfrs. of lathes, screw machines.

PREST-O-LITE CO., INC.
7301 Clayton, Detroit, Mich.
Mfrs. of oxygen, acetylene gas.

READING CHAIN & BLOCK CORP.
Reading, Pa.
Mfrs. of electric hoists.

W. S. ROCKWELL CO.
50 Church St., New York, N. Y.
Mfrs. of gas furnaces.

SAMUEL OLSON & CO.
2416 Bloomingdale Ave., Chicago, Ill.
Mfrs. of material conveyors.

SCIENTIFIC INSTRUMENT CO.
535 W. Larned, Detroit, Mich.
Mfrs. of gauges, recording instruments.

SHEPARD ELEC. CRANE & HOIST CO.
388 Schuyler Ave., Montour Falls, New York
Mfrs. of electrical hoisting equipment.

SIMONDS SAW & STEEL CO.
Fitchburg, Mass.
Mfrs. of tools, saws.

ST. LOUIS PIPE BENDING CO.
1020 North Main St., St. Louis, Mo.
Mfrs. of copper coil bending machinery.

STANDARD CONVEYOR CO.
St. Paul, Minn.
Mfrs. of conveyors, escalators.

STAR TOOL & DIE CO.
2520 24th St., Detroit, Mich.
Mfrs. of shop tools.

STANLEY RULE & LEVEL CO.
New Britain, Conn.
Mfrs. of precision tools.

L. S. STARRETT CO.
Athol, Mass.
Mfrs. of tools and precision instruments.

STERLING BLOWER CO.
Hartford, Conn.
Mfrs. of blowers.

STOW MFG. CO.
Binghamton, N. Y.
D. Walker Wear, pres., gen. mgr., and adv. mgr.; C. E. Hotchkiss, vice pres.; C. F. Hotchkiss, Jr., secy., treas.; James P. Dickinson, chief engr.

Mfrs. of flexible shaft controls, drills, motor driven grinders.

SULLIVAN MACHINERY CO.
412 Peoples Gas Bldg., Chicago, Ill.
Mfrs. of air compressors.

SURFACE COMBUSTION CO.
New York, N. Y.
Mfrs. of gas furnaces.

SWIFT ELECTRIC WELDING CO.
Detroit, Mich.
Spot, seam, electric welding.

TACONY STEEL CO.
1416 Chestnut St., Philadelphia, Pa.
Mfrs. of die blocks.

C. J. TAGLIABUE MFG. CO.
18 Thirty-third St., Brooklyn, N. Y.
Brooklyn, N. Y.
C. D. Waters, pres.; L. C. Irwin, vice pres. and gen. mgr.; E. C. Boetticher, secy. and treas.; H. D. Cooke, sales mgr.; M. F. Behar, adv mgr.; V. Wichum, chief engr.

Mfrs. of recording instruments.

TAYLOR INSTRUMENT CO.
Rochester, N. Y.
H. J. Winn, pres., treas.; James Ely, vice pres., gen. mgr.; H. W. Kimmerl, secy.; F. M. Herrick, adv. mgr.; W. J. Gessner, chief engr.; P. R. Jameson, prod. mgr.; C. D. Hart, pur. agt.
Mfrs. of recording and registering instruments.

TAYLOR-WINFIELD CORP.
12 Atlantic St., Warren, Ohio
Spot and seam welding.

THOMPSON ELECTRIC WELDING CO.
Lynn, Mass.
Welding.

TOLEDO MACHINE TOOL CO.
Toledo, Ohio
Mfrs. of punch presses, shears.

TREADWELL TOOL CO.
Greenfield, Mass.
Mfrs. of taps, dies, screw plates, small tools.

UDYLITE PROCESS CO.
3220 Bellevue Ave., Detroit, Mich.
A. E. Baldwin, pres.; Benj. O'Shea, vice pres.; L. Levin, secy. and treas.; M. E. Louth, gen. mgr.; L. K. Lindahl, sales mgr.; R. C. Trees, adv. mgr.
Cadmium plating.

VAN DORN ELECTRIC TOOL CO.
Cleveland, Ohio
Mfrs. of electric drills, tools, buffers.

VIKING PUMP CO.
Cedar Falls, Iowa
Mfrs. of pumps.

WALTHAM GRINDING WHEEL CO.
Waltham, Mass.
F. C. Tibbits, pres.; M. F. Cunningham, gen. mgr.
Mfrs. of grinding wheels, oil stones.

WALWORTH CO.
Boston, Mass.
Mfrs. of air valves.

WARNER & SWASEY CO.
Cleveland, Ohio
Mfrs. of lathes.

WARREN TOOL & FORGE CO.
412 Griswold St., Warren, Ohio
Mfrs. of small tools.

WATERBURY BUTTON & MFG. CO.
Waterbury, Conn.
Mfrs. of bakelite and composition molded parts.

WEBSTER MFG. CO.
1856 Koster Ave., Chicago, Ill.
Mfrs. of conveyors.

WEBER & PITCHER
Fullerton & P. M. R. R., Detroit, Mich.
Mfrs. of warehouse trucks, wheels.

WEIL MACHINE CO.
313 Bates St., Detroit, Mich.
Mfrs. of drills, reamers, milling cutters.

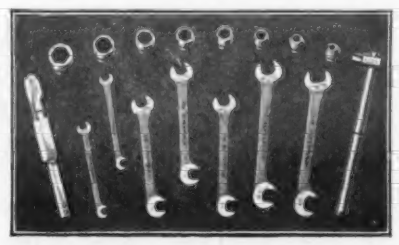
WELDIT ACETYLENE CO.
638 Bagley St., Detroit, Mich.
Acetylene welding.

WESTON ELECTRICAL INSTITUTE CO.
Newark, N. J.
Mfrs. of recording instruments.

WHITLOCK COIL PIPE CO.
77 South St., Hartford, Conn.
Mfrs. of coil bending machinery.

WHITNEY METAL TOOL CO.
98 Forbes St., Sandwich, Ill.
Mfrs. of angle iron bending machinery.

J. H. WILLIAMS & CO.
Buffalo, N. Y.



Mfrs. of wrenches, cutters, bit holders, forgings.

WILLIAM POWELL CO.
1224 Draper St., Cincinnati, Ohio
Mfrs. of air valves.

WINTER BROTHERS CO.
Wrenthen, Mass.
Mfrs. of taps, dies.

WIRE BRUSH CO.
Springfield, Ohio
Mfrs. of wire polishing brushes.

WOOD & SPENCER CO.
Cleveland, Ohio
Mfrs. of small tools.

YORK ICE MACHINERY CORP.
York, Pa.
Mfrs. of gas masks.

YOUNG BROTHERS
6500 Mack Ave., Detroit, Mich.
Mfrs. of enameling ovens, spray booths.